The Builder.

VOL. XXXIV. No. 1739. SATURDAY, JUNE 3, 1876.

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American Interiors.

DOUBTLESS the appearance of a work intended as an illustration of some of the best and most tastefully furnished rooms in American residences, not only as a record of what has been done, but as a model of what should be done, will be of some interest to those who are desirous to know what is the progress of taste in these matters on the other side of the Atlantic; the more so as in architecture, both external and internal, America is of course largely indebted to Europe, and to England especially, not only necessarily, but in a great degree intentionally. This latter is the case with the work before us, which professedly aims at reviving in America some of the old English taste in furniture and room decoration which has been so much cultivated among ourselves of late.

The folio volume produced with this intent* is what may be called a rather "tall" book. It is, to do it every justice, beautifully printed and got up, on thick cream-laid paper, with wide margins, and with a handsome binding, and altogether aims at being itself an *objet de luxe*. The author, in a preface dated from the "Household Art Rooms, Boston," states that his aim is, by giving a few models of tasteful interior decoration, to assist in creating a revolt against the vulgar, the meretricious, and the commonplace, "which have long afflicted us," and bringing about a happier state of things, in which "the Beautiful married to the Useful shall make life truer, finer, happier." Many more equally worthy illustrations might have been given, but for the "magnificent distances" of the American Continent, which place the good examples of household art in Baltimore, New Orleans, San Francisco, and elsewhere, out of easy reach. This reminds us of the remark of an eminent English comedian, who visited America not long since, and who, on being asked if he were not greatly impressed with the size of the country, replied that he had certainly observed that the principal towns were an immense distance apart, but that he could not see the advantage of it.

To return, however, to American Interiors: we are rather puzzled to find the table of contents ranged or divided thus:—

"The Home.]
The Dining-room.
The Library," &c.

whereby the impression is conveyed that "the home" is an expression applied specially to some part of the house other than the dining-room and the library. In fact, however, we find the title only applies to a short introductory remark, occupying half a page, on the blessings that may be expected to ensue from rendering homes more attractive. It should appear from this exordium (which should have been entitled "Home" in the abstract, rather than "the Home,"—at least it would be so in English) that the state of American society is deplorable, and will be till the influence of the Household Art Rooms at Boston can be brought to bear upon it. "We have tried all sorts of panaceas,—free trade, free press, free schools, free and ignorant suffrage: they avail not. Vice, crime, folly, and discontent riot abroad. Whenever a man's home becomes to him the most attractive place upon earth, he will not leave it to seek either the grog-shop, the gambling-room, or the ring,"—which we must presume, therefore, are at present the places in which the typical American is to be looked for. To achieve this desirable end of making home attractive, and bringing back the American from his grog and gambling saloon, Mr. Wyllys Elliott provides twenty-two illustrations of the interiors of dining-rooms, libraries, and other rooms, in some American houses (whose inhabitants, we suppose, have been already "plucked from the burning"), in order, by pointing out the right combinations of floor-stains, wall decorations, and furniture, to lead his unfortunate and debased countrymen to a higher state of moral being.

It will not be supposed that we for a moment underrate the importance of household order, and fitness, and beauty, in making home life attractive and happy. We have been working at this for years. But nothing is gained by thus over-weighting a subject, and putting forth the writer's own specialty as the one thing needful to set society all right. It must be remembered, too, that the relation between the inhabitant and the habitation may be looked at from two sides, when we get away from the very poor; and that a well-ordered and tastefully-furnished house is generally an effect as well as a cause of moral refinement. And it is undeniable that very beautiful lives have been led in very ugly or worse than ugly dwellings.

So much for the philosophy of the "Boston Household Art Rooms." When the author can get down from his high horse, he speaks much more to the point. He follows with a history of the dining-room as it existed in different stages of European domestic life, illustrated by cuts from old drawings and book illustrations. This is not badly done; and as the author observes at the commencement that "the history of the dinner may be made the history of man, for all life centres there," we may thank him also for what he has omitted, and for not attempting to work out in its entirety this very extensive theory of the position of the dinner-table in the scheme of creation. There are, however, some odd mistakes, which indicate that students of these matters in Boston, at least, are not quite "posted up" in the history and nomenclature of European styles of design. In the time of Henry VIII., we are told, the forms and styles of the Italian Renaissance had penetrated to England, "and a style of architecture and decoration grew up there suited to its domestic life, which we now know as the Tudor Gothic." To our English readers the blunder is, of course, obvious; for the information of American readers we may observe that the Tudor-Gothic style is not a mixture of the Italian Renaissance with the indigenous style of England, but is simply the last phase of English Gothic in its rich and ornamental but weak decadence. It was not until the reign of Elizabeth that the fusion of Renaissance with the remains of Gothic feeling produced the mixed style which we call the Elizabethan. It is true that Elizabeth was a Tudor, but the name Tudor is not applied to the style of her reign. The Library Interior, designed by Messrs. Ware & Van Brunt, and referred to by our author as an illustration of Tudor Gothic, is, in fact, very late Elizabethan, with hardly a reminiscence of Gothic about it; and as it is called Elizabethan in the description appended to the view, we presume the author regards the terms "Tudor" and "Elizabethan" as synonymous, and that in this idea part of his mistake has originated.

The first interior drawn and described is the library of Mr. Longfellow, belonging to what is in America an old house, built about 1740. There is nothing particularly observable in the room, which has not much style about it of any kind, but may be termed Classic in virtue of two Corinthian columns standing out from one side of the room, and forming a kind of architectural framework to one of the book-cases. These said columns are execrably drawn, out of perspective and out of all proper proportion, and are described in the letterpress as "Ionic." Among the accessories of the room is mentioned a full-length picture of "Listz," whoever he may be; we presume Lizst to be the name intended. Of the Library of Mr. Donald G. Mitchell, another of the illustrations, it is profoundly observed that a more "noticeable" room might no doubt have been made, "for our ideas are larger than our purses, so much as the heavenly is grander than the earthly." If Mr. Elliott's ideas (in literary expression) are not larger than his purse, he must be very well off indeed; but he is, we are glad to find, more sober as a designer than a writer, or is kept in wholesome check by that

* The Book of American Interiors. Prepared by Charles Wyllys Elliott, from existing Houses: with preliminary Essays and Letterpress Description. Illustrated in Heliotype. Boston: Osgood & Co. London: Marcus Ward & Co.

very restriction of purse-power in his clients. His own arrangement of a private library, shown in the fourth illustration, is good and tasteful, and he draws attention to the attempt made to construct furniture on true principles; "that the grain of the wood should not be twisted or weakened, and that the frame that supports the cushions should be distinct and decorative. In a Turkish harem or a Pompeian room, where all recline, the furniture may be all cushions, but in a room where we wish to sit upright it is not good art nor good construction. The bad fashion will no doubt pass." We hope so, though it is not our experience that bad fashions are very ready to "pass," but we are glad to find a point in which we are able to entirely agree with the author. In the decoration of the walls of this room we notice that the frieze, which is dark red, is adorned with "a procession of squirrels." As the same idea in decoration is mentioned elsewhere in the book, we presume it is a favourite one. The use of the forms of the animals prevailing in a country, as part of the decorative "property," seems to be common to the east and the west, and the American squirrel is used in the same way as the Indian elephant processions on the temples which have been a good deal brought under our notice recently. Among other pictorial decorations of the same apartment "Raffaelle's and Holbein's Madonnas" hang as ornaments. There are a good many more of these in the States, we imagine, than Raffaelle and Holbein ever painted; the American air is favourable to their growth.

In the course of some remarks upon a library interior, the author observes that the library should be something more than a mere place for preserving of books. "It should be the most interesting, stimulating, and useful room in the house. Here the family should gather for talk, for work, for reading; here should come friendly people; here should wide, open, hospitable bookcases offer and tempt all comers by books placed within their reach." There is some truth in this. There is no doubt that more may be made of a library, properly so called, in the way of decorative effect, than is generally done. The very question of the best way of providing for and placing the bookcases is suggestive of the architectural treatment of the room; that is to say, it ought to be so, for the room ought to be designed for the bookcases, and not merely be an apartment in which bookcases may be placed. This is very seldom the case, nor is it so in any of the library interiors given in Mr. Elliott's book. We concur with the writer about open and "hospitable" bookcases. The system of keeping books locked up under glass, where no one can take up a volume without a process of unlocking and opening doors, appears to us to be contrary to all the best uses and influence of a home library. It is quite unnecessary for keeping the books from dust, which in fact cannot be kept out by this means, and the general result is rather that the books are never dusted at all, and seldom disturbed from their sacred repose. As to making the library more of a family room, it might often be done with advantage in moderate-sized houses, and where the owner does not require to carry on heavy or regular work in it. There is no difficulty in giving a look of elegance and attractiveness to such a room. In England, however, the room called "the library" is usually, in middle-class houses, the business-room and *sanctum* of the master of the house, and the name is often used for an apartment which has no real title to it; like the library mentioned in one of Thackeray's shorter stories, which "consisted chiefly of boots."

Among the most pleasing of the interiors given here is the simply-furnished but home-like library of Bryant, the poet, described briefly in his own words, and illustrated by a more effective drawing than most in the book. Next to this is the interior of a study at Harvard College, decorated by the author of the book, and which appears to be well done, and looks well in the drawing. The dining-room by Messrs. Emerson & Fehmer is also apparently a well-treated room, noticeable for the bold timbered ceiling of plain oak, with a good chandelier design hung from it in an effective manner. There is a solidity of style about the whole room and its furniture which is very satisfactory, and contrasts favourably with the somewhat flimsy character and style of a good many of the illustrations. The same kind of praise may be bestowed on the library of Mr. Burnham at Boston, also designed by Mr. Elliott, who appears to have certainly better taste and more reticence in his style of ornament than in his literary style. The dining-room from the same house is illustrated, and is also good. One sentence in the description of this latter apartment we must not pass over. "The dining-table in style may be termed Domestic Gothic,—not Eastlake, a most vague and badly-used term." This is puzzling. A gentleman of that name wrote a book on Household Taste, we know, which was well received in England. It should appear, however, from this quotation, that the secretary of the Institute of British Architects has the glory of having given a name to a style in the new country; no other explanation seems possible. "Hints on Household Taste" has scarcely got quite so far as that, on this side of the Atlantic; but the knowledge of his reputation on the other side may, we hope, console the author of it for anything which may possibly have induced him to regard himself, recently, as "a vague and badly-used term."

On the whole, it appears to us that Mr. Elliott is more successful in designing furniture and decoration than in writing about it, and that he may at least have the credit of teaching by example, as his own designs are the best in his book. The publication gives us, however, some idea of what is being done in America in the way of interior decoration, and what is the progress of taste therein; and, as far as we can judge from this book, it should appear that our American friends have got hold, in a second-hand way, of some of the revived styles of furniture and decoration which are now largely practised in England, but without penetrating the feeling and motive of them sufficiently to work out the details well. Even in the best specimens given there seems to be a want of feeling for style in detail, and a great deal of what is indicated would pass for very second-rate work in England. That is to say, as far as we can judge from the drawings, which we must say are very inadequate in execution. They are apparently photographed from pen drawings, and the author says that in making the sketches he has been "much assisted by the firm pencil of Mr. H. M. Stephenson, an architect whose eye seizes, and whose hand records, the nicest points." For the repute of American architects, we should hope that he of the firm pencil is not responsible for much in the drawings. The style in nearly all of them is ineffective and scratchy, and the perspective drawing of details is often fearful and wonderful. No English architect who valued his reputation among his professional brethren as a draughtsman would identify himself with such drawings. In regard to the general question of illustration, we may say that drawings of room decoration are much more likely to be of practical value to other designers (supposing them to be good enough to serve as models) if shown in geometrical drawing more than in views, unless the latter can be larger and more carefully finished in detail than those in the volume before us, which may help in exciting an interest in the subject among general readers, but can hardly be of much use to "the craft." We should be curious to know whether or not this book is taken to represent the best that has been done in this way in America.

The volume has for a frontispiece a photograph of the Dining-hall at Harvard University, built as a memorial hall to Harvard men who fell in the late war. It is a large apartment, seating 500 to dinner, with an open-timbered roof and walls wainscoted up to the sills of the range of windows, and decorated with portraits and busts, the latter placed on brackets against the wainscot. It appears to be a fine interior in a pure Gothic style, and not unsuccessfully reproducing the type of some of the great Mediæval halls of the old country.

It is noticeable that not a single specimen of drawing-room decoration is given in the book; an omission which strikes one very oddly in England, where the drawing-room is considered to be *par excellence* the ornamental apartment of the dwelling.

BANKSIDE.

THE history of the poorest and dirtiest neighbourhoods is often of more interest to us than that of the most aristocratic districts. The latter are seldom of sufficient antiquity for any literary associations of moment to have gathered around them; but the former, having frequently fallen from a higher position, attract our attention by the contrast of their past and present states. This is peculiarly the case with Bankside. Few Londoners know more of this place than is to be seen from the Thames Embankment on the northern side of the river, or from the deck of a steamer; and yet he who will walk quietly along the dirty street, which is bounded on one side by wharfs and boats lying in the mud, and on the other by miserable houses, and keep his eyes open to what is around him, may fancy himself back in Elizabethan London. It is quite true that Time is constantly making changes, but it is equally true that Time also resists change. There is nothing actually existing now in Bankside that was there in the sixteenth century, but the contour of the street, and nearly every name, have lasted in their integrity, and will last for many a long year more.

The "Bank" in Elizabeth's reign was a long straggling street, extending from the Manor of Paris Garden on the west to the liberty of the Clink on the east. The district grew gradually from its two extremities, the buildings at last joining in the centre. At the eastern end next to the Priory of St. Mary Overies, stood Winchester House, the palace of the Bishops of Winchester for several centuries. It was built by William Gifford, bishop of that see, about the year 1107, upon ground belonging to the Prior of Bermondsey. Stow describes it as "a very fair house well repaired, and hath a large wharf and landing-place, called the Bishop of Winchester's Stairs." In its early history the house was connected with one of England's greatest worthies. During the vacancy of the see, it was lent to Simon de Montfort and his wife, the daughter of King John, but they did not live in it long; for Henry III., in a fit of spite, ordered them to be ejected, and they escaping, took ship in the Thames, and went to France. On the 2nd of February, 1424, the Scottish king and poet, James, married Lady Jane Beaufort, in the church of St. Mary Overy, and the uncle of the bride,—the celebrated Cardinal Beaufort,—being Bishop of Winchester at the time, the marriage feast was held in Winchester House. Another celebrated holder of the see and resident in the house was Bishop Gardiner, who lived in great state, with a large number of gentlemen of family to attend him as pages. Among the "State Papers" is a letter from Gardiner to Sir William Paget, Secretary of State (dated the 5th of February, 1547), in which he states his intention of having a solemn dirge and mass for the late king, and adds that at the same time the players in Southwark are to have "a solemne playe to trye who shall have most resorte, they in game or I in earnest," requesting that the Lord Protector will interfere. This is an early instance of the collision between the actors and the clergy, which has been occurring again and again since that time.

The last bishop who lived in Winchester House was Lancelot Andrews, who died in 1626, and was buried in St. Saviour's Church. The Presbyterians, in 1642, turned the episcopal palace into a prison for the Royalists, and in that year Sir Kenelm Digby was a prisoner there. Of this worthy, Selden speaks as follows in his "Table Talk":—"Sir Kenelm Digby was several times taken and let go again; at last imprisoned in Winchester House. I can compare him to nothing but a great fish that we catch and let go again, but still he will come to the bait; at last therefore we put him into some great pond for store." In 1649 the house was sold for 4,380*l.* 8*s.* 3*d.* to Thomas Walker, of Camberwell, but at the Restoration it was recovered by Bishop Morley, who, empowered by an Act of Parliament, leased it out for various purposes, and bought a house for himself and his successors at Chelsea. To the south of the house were gardens, statues, fountains, and a spacious park, of sixty or seventy acres, the recollection of which is preserved in the name of Park-street. Adjoining to Winchester House on the south-west was Rochester House, the town residence of the Bishops of Rochester, of which Stow writes:—"By whom first erected I do not now remember me to have read, but well I wot the same of long time hath not been frequented by any bishop, and lieth ruinous for any lack of reparations." It was taken down in 1604, and in the churchwardens' accounts of St. Saviour's, (a MS. of the time of James I.) is the following entry quoted by Peter Cunningham:—"Rochester House was about forty years since one great house and a great garden, and now consisteth of sixty-two tenements." A little to the west of Winchester House stood the Clink, a gaol or prison "for the trespassers in those parts" which was under the control of the Bishop of Winchester. Here the Bishop tried

all pleas of debt, damage, or trespass. About 1745 the old prison which stood at the corner of Maid-lane being in great decay was abandoned, and a dwelling on the Bankside was appropriated in its stead, but the latter was burned down during the riots of 1780.

The borough of Southwark was added to the city of London in the reigns of Edward I. and III.; but the Clink liberty was specially exempted from City jurisdiction because it belonged to the Church. The consequence was, that vagabonds crossed over the water to Southwark in order to escape from justice, and the Bankside obtained a most unenviable notoriety. In a proclamation of Henry VIII. against vagabonds, ruffians, and idle persons, dated May 26, 1545, this place is specially mentioned:—"Yet be they soe rooted in mischeefe and idlenes, that they give themselves to noe labor or honest kind of living; but entertayne themselves with theft and falshood in plaie, whereby many simple yong men be polled, and some utterly undone, and with other detestable vices and fashions, commonly used at the Banke and such like naughtie places where they much haunt." This evil report was even then a thing of ancient date, originating in the existence on Bankside of the licensed stews.

We will now pass from the Liberty of the Clink to the Manor of Paris Garden, which takes its name from Robert de Paris, who had a house and garden here in the reign of Richard II., held under a lease from the Abbot of Bermondsey. It is described in a later grant as "the mansion house within the mote, the gatehouse, four pastures, two pastures ditched about." In illustration of this a note in *Notes and Queries* (No. 265, 1854) may be quoted:—"There is or used to be a ditch or dyke running across Great Surrey-street, Blackfriars-road, but for some years past it has been covered or built upon. All buildings thereon are subject to a ground-rent payable to the steward of 'Old Paris Garden' and collected half-yearly." Paris Garden figures in the Calendars of State Papers and in some letters of Mr. Recorder Fletewode, the place is well described. On July 12, 1578, Fletewode wrote to the Vice-Chamberlain and told him that Paris Garden was notorious for secret meetings of foreign ambassadors and their agents. The French ambassador was discovered by the watch on the previous night, accompanied by Sir Warham St. Leger and Sir Wm. Morgan. Resistance was offered, and the ambassador "swore grete othes that he wold do many things," but the watch said to him "they knew not his dignitie," and that he and his party were night-walkers contrary to law. In a letter to Burghley, Fletewode wrote that Paris Garden was a very bower of conspiracy. "He endeavoured to get into the house of St. Leger at Chandos-place, and then went over to Paris Garden, where the place is so dark with trees that one man cannot see another, except they have *lynceos oculos*, or els catte's eyes."

In the reign of Charles I. the manor-house of Paris Garden was known as Holland's Leaguer, and in 1632 two books were published with this title,—one was a stupidly indecent comedy, by Shackerly Marmion, which has no reference to Paris Garden; and the other, a little history by Nicholas Goodman, professing to contain an account of the origin of the name,—"Holland's Leaguer: or, an Historical Discourse of the Life and Actions of Dona Britannica Hollandia, the Archmistris of the wicked Women of Eutopia. Wherein is detected the notorious Sinne of Panderisme and the execrable Life of the Luxurious Impudent." A woman named Holland, seeking, after her escape from Newgate, for a house where she could carry on her nefarious traffic, finds the old untenanted manor-house of Paris Garden just suitable for her purposes. The situation of the house, with its ditches, trench, &c., is described, and it is stated to be near three famous amphitheatres, viz., "The Continent of the World" or the Globe, the Hope, and the Swan. The law attempted to oust her from her quarters, but the constable of the peace was successfully kept on the outside of the moat, and he beleagured the place in vain. In 1660 the place was still encompassed by a moat, and shortly afterwards the manor was formed into the parish of Christ Church, but the infamous old woman's name still lives in Holland-street, which is built on the site of her house.

We have not yet said anything of the Paris Garden Theatre, which is mentioned early in Henry VIII.'s reign. It was probably situated some little way to the east of the manor-house, although it was in the liberty of Paris Garden. In Agas's map of London there are only two open circuses marked as standing on the Bankside,—one is called the "Bull-baiting" and the other the "Bear-baiting,"—and near by are the dog-kennels. Both these circuses were rebuilt in a more substantial form; the one to the east was afterwards called the "Hope," and the other, on the west, was probably the Paris Garden Theatre, which appears, also, to have been called the "Swan." The Earl of Northumberland is said, in the Household Book of the family, to have gone to Paris Garden in the seventeenth year of Henry VIII., to see the bear-baiting there; and Pedro de Gante, in his narrative of the visit made to England in February 1543–4, by his master, Don Manriquez de Lara, third duke of Najara, while describing the sports at the same place, writes,—"They brought a pony, with an ape fastened on its back, and to see the animal kicking among the dogs, with the screams of the ape, beholding the curs hanging from the ears and neck of the pony, is very laughable." The chief day of exhibition in the reigns of Henry VIII. and Elizabeth was Sunday, but James I. prohibited performances on that day. Robert Crowley, printer and clergyman, refers to this scandal in his "Epigrams" (1550):—

> "At Paryse garden, eche Sundaye,
> A man shall not fayle
> To fynde two or thre hundredes,
> For the bearwardes vaile";

and Thomas Cartwright, in his "Admonition to Parliament against the Use of the Common Prayer, 1572," says,—"If there be a bear or a bull to be baited in the afternoon, or a jackanapes to ride on horseback, the minister hurries the service over in a shameful manner, in order to be present at the show." It was on a Sunday, in 1583, that a fearful accident occurred at this theatre. The stage fell, and eight persons were killed, while many more were seriously injured. So popular was the sport of bear-baiting that the lawyers are said to have neglected their studies, "leaving old Plowden, Dyer, and Brooke to see old Harry Hunks" and Sackerson, the bear who is immortalised in "The Merry Wives of Windsor." This taste is ridiculed in one of the epigrams of Sir John Davys:—

> "Publius, student at the Common Law,
> Oft leaves his books, and for his recreation
> To Paris Garden doth himself withdraw."

The bears and their bearward are introduced by Ben Jonson into "The Masque of Augurs" (1622), where Slug says,—"Very sufficient bears as any in the ground, the Paris Garden, and can dance at first sight and play their own tunes if need be. John Urson, the bearward, offers to play them with any city-dancers christened for a ground measure." The bearward, whose name was Joshua Gosling, figures also in "Hudibras,"—

> "Next marched to Orsin, famous for
> Wise conduct and success in war,
> A skilful leader, stout, severe,
> Now marshal to the champion bear,
> * * * * *
> Bred up where discipline most rare is,
> In Military Garden, Paris."

Among the broadsides in the library of the Society of Antiquaries is one which gives "The Plot of the Play called 'England's Joy,' to be playde at the Swan this day" (November 6, 1602), which shows the date at which the place was used as a theatre.

The site of his Majesty's Bear-garden at the Hope is marked by a court which is still named the Bear-garden. In Howes's MS. continuation of Stow's Survey is the following curious account of the means by which the same place could be used as a theatre for acting, and as a circus for the baiting of bears and bulls:—"The Hope, on the Banke side in Southwarke, commonly called the Beare-garden: a playhouse for stage playes on Mundayes, Wednesdayes, Fridayes, and Saturdayes; and for the baiting of the beares on Tuesdayes and Thursdayes; the stage being made to take up and down when they please. It was built in 1610, and now pulled downe to make tenements by Thomas Walker, a peticoate-maker in Cannon-street, on Tuesday, the 25th day of March, 1656. Seven of Mr. Godfrie's beares, by the command of Thomas Pride, then hie Sherefe of Surry, were shot to death on Saturday, the 9 day of February, 1655, by a company of souldiers." Ben Jonson's "Bartholomew Fair" was first acted at the Hope, and here Taylor, the water-poet, challenged Fennor "to answer him at a trial of wit." If, as is stated above, the building was pulled down in 1656, it must have been re-erected after the Restoration; for, on April 12, 1682, a fine but vindictive horse was advertised to be baited to death for the amusement of the Morocco ambassador. The Hope is mentioned in a street-ballad, printed and sold on the frozen Thames in 1684, which is entitled "Freezland Fair, or the Icy Bear-garden,"—

> "He said that the Pope
> (Pray mind, 'tis a trope)
> Would send us his bulls by way of the Hope;
> And though for the sign we have all along been waiting,
> I t'other day saw on the ice a bull baiting."

The Rose Theatre was still further to the east of the Bankside, and its situation is marked by a place still called Rose-alley. Ben Jonson's "Every Man in his Humour," in its earliest form, was brought out at the Rose in the year 1596, when the theatre belonged to Henslow. There is not much history connected with the place; but Taylor, the water-poet, mentions it in his "True Cause of the Waterman's Suit concerning Players." The name appears to have existed at an early date, as a messuage or tenement called the Rose is mentioned in the charter of Edward VI., granting the manor of Southwark to the City of London. A house called the Swan is referred to in the same charter.

The Globe, "the glory of the Bank," was situated at the eastern end of Bankside, not far from the Clink Prison; but as we had an article on this renowned theatre not long since (April 11th, 1874), we will not further notice it here. After its destruction the site was used for a place of worship, and now it has been swallowed up by the great brewery of Messrs. Barclay & Perkins, in Park-street. This was originally the Anchor Brewery of Mr. Child. Child's daughter married his clerk, Halsey, and brought the business with her as a marriage portion. Their only daughter married Lord Cobham, from whom the concern was bought by Halsey's manager and nephew, Ralph Thrale. At the death of the latter's son, Henry Thrale, the friend of Dr. Johnson, in 1781, the brewery was purchased by Barclay, the banker, for his son, and by Perkins, Thrale's chief clerk, for himself.

If we look again at Agas's map we shall see a considerable number of ponds marked near the two circuses already mentioned. These were the pike-ponds, for keeping the royal pike.

Near Paris Garden was the Falcon Inn, which was formerly in great repute, and was reported to have been a frequent resort of Shakspeare; but this is a mistake, for at the time of the great dramatist's death there were no inns on the Bankside. This fact we learn from a petition of the inhabitants of Southwark against the opening of a road or way leading out of Southwark to two newly-erected inns on the Bankside, which was presented to the Lord Mayor and Aldermen in March, 1619, and transmitted by them to the Lords of the Privy Council. The memory of the Falcon Inn still lives in the name of the Falcon Glass Works, situated in Holland-street.

Kemp, the actor, notices the theatres of Bankside and the inns of Southwark in his curious "Nine Daies Wonder, performed in a Daunce from London to Norwich. London, 1600." He complains bitterly of the ballads written against him, and seeks the ballad-maker. "I found him about the Bankside sitting at a play. I desired to speak with him, had him to a taverne, charg'd a pipe with tobacco, and then laid this terrible accusation to his charge. He swels presently like one of the foure windes, the violence of his breath blew the tobacco out of the pipe, and the heate of his wrath drunk dry two bowlefuls of Rhenish wine. At length having power to speake, 'Name my accuser,' saith he, 'or I defy thee, Kemp, at the quarter-staffe.'"

In conclusion, we would say a few words on some of the celebrated inhabitants of Bankside. Philip Henslowe, the manager of the Rose Theatre, and part proprietor of Paris Garden, "one of the grooms of his Majesty's chamber," lived close by the Clink, where he had previously carried on business as a dyer.

Philip Massinger, the great dramatist, lived on the Bankside. He died in March, 1638-9, suddenly; so suddenly, indeed, that retiring to bed in his own house, in good health, he was found dead the next morning. His body was buried in the neighbouring church of St. Saviour, the resting-place of many remarkable men, from the poet Gower downwards. Sir Edward Dyer, who died in Winchester House (1607); Lawrence Fletcher, a leading member of the company of actors to which Shakspeare belonged; Edmund Shakspeare, "player," the poet's younger

brother; and John Fletcher, the dramatist, all lie here. Sir Aston Cokayne wrote of Massinger and Fletcher,—

"In the same grave Fletcher was buried, here
Lies the stage poet, Philip Massenger:
Plays they did write together, were great friends,
And now one grave includes them at their ends;
So whom on earth nothing did part, beneath
Here in their fames they lie in spight of death."

Malone wrote, in his "Inquiry into the Authenticity of the Shakspeare Papers" (1796):—"From a paper now before me, which formerly belonged to Edward Alleyn, the player, our poet appears to have lived in Southwark, near the Bear-garden, in 1596. Another curious document in my possession affords the strongest presumptive evidence that he continued to reside in Southwark to the year 1608." These important manuscripts were unfortunately never published, and nothing is now known of them; but, if true, and there is no reason to doubt their authenticity, the interest of Bankside must be greatly increased to us by the knowledge that Shakspeare once lived there.

THE ENDOWMENT OF SCIENCE RESEARCH AND ART RESEARCH.

THERE is at the present moment, happily, a good deal of public attention directed to a subject hitherto neglected, but of no small importance. We allude to that of "Science Research Endowment," and we would wish specially to induce, on behalf of those whom we more particularly address in these pages "Art" Research Endowment. It would be difficult to imagine, as we view it, a more important subject of inquiry, or one more interesting to those who take concern in the progress and well-being of science and art. Some there are, we are quite sure, who more especially devote themselves to the all-important subjects of scientific or artistic researches and discovery. Who are they, and how specially do they work, and under what conditions? Of the value of these researches and discoveries sometimes there can be no sort of doubt; indeed, if we but go back a little into the past, dim though it be, we may well wonder at what, as we look at it, becomes but too visible. The present way of work is before us, and all may see it; it needs no more than the mere pointing to; and then he who runs may, and needs must, read,—a something and a somewhat. We propose here to confine ourselves chiefly to art research, that having been hardly as yet touched on elsewhere. It is to the full as important as the strictly scientific aspect of the question, and must needs be as interesting to artists, as science to experts. First, a word or two on the strictly scientific aspect of this question, now so much discussed. It must help to an understanding of the artistic. We have often and often wondered at the difference between the past way of work and doings, and the immediate present of them. We may note year by year, nay, almost week by week, the thinkings and doings of the Airys, Tyndalls, and Huxleys of to-day, and we may read of what they do so industriously, and mark by so doing the progress that is being made in scientific research. Such men are before the world, and cannot well be neglected. But when we go back to the days of Tycho Brahe, of Galileo, or of Newton, how very different everything becomes. How entirely science must have absorbed all their faculties, and how the passion for scientific research must have driven all considerations of difficulty out of their thoughts, is but too evident at a glance. All things would seem to have been against them; the very spirit of the times in which they lived and worked being a foremost one. And then, again, but think of the instrumental means they worked with, all of the very rudest and most clumsy sort. Let any curious spectator but look at the telescope that Newton worked with, now exhibiting, we believe, at South Kensington, and then compare it with the appliances of to-day, and he must needs wonder at how the mighty work he did do was ever done! Tycho Brahe, who was a lawyer by profession, abandoned law for astronomy, and was furnished with the means for "making observations" by a wealthy relative. Galileo, who committed so many offences against the then orthodoxy, taught mathematics, and must needs have worked in the face of all kinds of difficulties. His book was publicly burnt,—at this we may perhaps wonder, as also perhaps at how it was printed, and how many copies of it were sold. Of Newton what can be said that has not already been said? Why, truth to tell, a great deal. We have often wondered at the course of life of the boy Isaac, and that of Mr. Newton, and at how that wonderful passage from the old cottage to "Trinity" was ever made. In time, as we all know, Newton got to London city, as it then was, and lived in a dull street, St. Martin's-street, though in a somewhat dignified house, No. 35, at which we may again wonder a little, with his books such as they were about him, and a small observatory at the top of this house. Let us hope that this house will be preserved, evidencing as it does very many things. We might thus go on and cite examples without number of those who in the past have come more or less under the influence, in one way or another, of "science endowment." Society and individuals have in various ways assisted the votary of science to live, and to go on with his work of research and discovery. Such discoveries could never have been made without assistance of some kind or other, or in one or another form. Galileo could have got but little,—nothing, one would say,—for his "Discourse on the Solar Spots," nor could Newton have lived on the sale of his "Optics"; but who will doubt the infinite value of such works as matters of research, and as steps in a mighty progress, without which the standpoints now attained could not have been arrived at by any possibility? No more instructive subject of contemplation can there be than that of the difficulties and hindrances under which science has been wrought out, and advanced to the point at which we now find it. And it is the same with art,—if looked at as keenly.

We may now come to art and artistic matters, the necessity of research being not confined to science; it is equally necessary to art—to architecture, sculpture, and painting. No one who reads this will contend for a moment that these subjects are in any way exhausted, or that "research" in and about them has gone its full length,—nay, we had almost said, that the materials for it are but now accumulating, day by day, to be yet exhaustively analysed. Let us cite but one or two examples out of whole multitudes. We all know how a modern church is brought into existence: say, to make the matter as plain as may be, a Decorated church. Whatever its artistic worth, it is, as all know, the result mainly of the study in detail, more or less close and elaborate, of "precedent." An old church in the Middle English Gothic is, more or less, both in plan and in detail, copied and followed. The new building is a reproduction, more or less exact, of the old church itself, and a type of such. We are speaking here not of arrangement or purpose, but simply of the architectural and artistic forms and expression. It is the same with any other style, the precise style being fixed on and determined. But of the past way of work, what of that, and how shall it be even so much as cited, so totally different was the *modus operandi* of its production? Except in special cases, no attempt even ever seems to have been made to copy past and already existing work in detail, or even in plan. Here is a matter for "research," whether endowed or no. The Middle Age architect learnt,—there is no other way of putting it,—the language, as it was then spoken, of Gothic architecture, and was as ready with the words of it, all disjointed as they might be, as a modern writer is ready with his words and language to write a new book or a new poem. It was a wonderful process, if we do but think of it. Architecture was, in the now so dead past, a language of materials and forms, and was spoken, or rather written, as language itself then was and is. The old artist did not copy the last stone book, but wrote another and a new one, though with the same words. But there is a yet stranger aspect of this antique phenomenon. The general forms and details, as all know, the very language itself, *changed* as the centuries passed on. The stone language of the old Romanesque passed, insensibly may be, in the hands of its artists into the Early Gothic, and this, again, into the more advanced style which followed, and that in a way and by a process which may well demand further "research." Nowadays it is mysterious enough. It is a mighty problem, and may well call for research and for the efforts and study of those who can give fair attention to it. We may see plainly enough the marked and distinctive difference between the Romanesque, and the Early English, and the Perpendicular; but of the gradual and well-nigh insensible change from the one style to the next in detail is not by a long way so easy to get at. We must here contend, therefore, that art research endowment is to the full as necessary in these days as science research endowment. Let us take one other instance from another style of art, from the Renaissance, as practised by such men as Wren and Inigo Jones. Both these artists worked from precedent, laid down for them with mathematical exactness, as any curious student may ascertain by going through the figured plates of a Palladio or Chambers. Yet how different the mode of work, and the use made of the art-language. The Whitehall front is not more a thing *per se*, in details, and a different thing from the east end of St. Paul's, in detail, than would be the chapters of a book written to describe those buildings. The "language" in which they are written is the same, but how differently written, and the forms the same, but how differently interpreted. This is not so striking an example as the Gothic changes and progress, but it is well worth deep and attentive study and research. The means for study which Wren and Jones had in their day were but small and narrow indeed, when compared with those which we now have all and everywhere about us. For every single volume which Inigo Jones could have had we, it is certain, have a score. It is truly wonderful to note what the old architects accomplished, when it is considered how little they had to go to or to work from. Who is it that will dispute the capabilities and the skill with which he of the Temple Church went to work, and built up that, as it must have been then, architectural gem? But where were his books and his "precedent"? Compare his no-means for going to work with the whole mountains of help out of which the New Law Courts, so close to it, are springing up. Surely there is room enough for "art-research."

Very much more might be said, in very many ways, on this need of art research as well as scientific research, and much might be said on the all but total abence of provision for it. Here and there a "professorship" is to be noted; but even those are mainly for the purposes of teaching by lectures what may be termed almost elementary matters to classes, so that full value is at once got for the money spent, and no one can complain. It therefore is hardly enough; a something more would seem to be needed. After years spent in the study and in the elaboration of new forms, out of or following the old, it would seem to be one of the vocations of all scientific and art societies; either those now existing,—such as the Royal Society,—or of new ones to be in the future founded with such purpose; to help those who have helped them, and to aid, *e.g.*, in the publication of results if they do no more. But more than this they might and one day will do. Newton must needs have spent years in the getting together the matter for the "*optics*" and in the mere writing of it, when every line was a new thought; but what its value was in the "eye of his bookseller," may remain a mystery to those to whom all such things are mysteries, but to none else. And there would seem to be no help for this in the very nature of things. Advanced work is addressed but to a few, and can only be appreciated and apprehended by such; but of its value there can be no sort of doubt. Is not the time, therefore, come when some help might well be given to those who do such work? A judiciously applied "Research" fund in art, as well as in science, would supply a crying want.

We would add a word of practical advice, and would be understood as advocating here, not so much the increase of existing means for encouraging science and art progress and thought, though that is needful enough, but the initiation of a new energy and new means of help,—one of them by the recognition of those who have, without previous aid, and of themselves, made any valuable and useful addition to the stock of already-known truths; and also by affording to such the means to follow up such studies. Such a mode of help could hardly fail, for the capacity of the applicant would be always guaranteed, and the fact of his special ability, whatever that might be, a positive and proved certainty. Might not, we would here venture to ask, a portion of the surplus funds of the International Exhibition of 1851, be devoted usefully to this purpose? That surplus is stated to be large, and it has been surmised that it is the intention of the Commissioners to appropriate it to the creation of a "first-class scientific library" at South Kensington. A good, doubtless; but is there not a large library there, as it is? And, by the way, books, after all, are but poor helps when you come to real business, and practical work, and original research.

STRONG AND WEAK POINTS OF THE EXHIBITION OF SCIENTIFIC APPARATUS AT SOUTH KENSINGTON.

THE new phase exhibited within the past few days by South Kensington Museum and its adjuncts is one that deserves serious attention. There can be little doubt that the able managers of this institution have long since made a practical discovery as to the mode of maintaining the interest of a museum, of which they have been careful to take advantage. Many of our readers may remember occasions on which they have been beset with a strange perplexity on attempting to re-visit some well-remembered object, or group of objects, in the Courts of South Kensington. Descriptions have been given, from time to time, in more than one journal devoted to the subject of art, of various branches of the Museum,—of the ceramic gallery, the goldsmiths' work, the sculpture, the stained glass, or what not. Armed with such a clue, the visitor has sought the spot, and found that, at least as matter of arrangement, the elaborate account was altogether inapplicable, a thing of the past, a mere source of confusion. We can bear witness to more than one expression of annoyance at a constant change, as incessant as, but without any of the calculated regularity of, those of the moon or of the tides. But to understand at once the reason and effect of this unresting movement the visitor should extend his observations. He should visit not only South Kensington, but other Museums in which no such cause of disturbance has to be deplored. Two or three experiments of this kind will give him a good deal of practical information. He will find that if he goes to examine a particular specimen, wishing to consult a museum as he would consult a library, the advantage of immobility is evident. But it is an advantage in this respect alone. As to general pleasure or satisfaction to be derived from the visit, it diminishes each time. The very effect on the eye of a stereotyped permanence of arrangement in a great number of carefully-preserved objects is wearying. One feels that one has seen all that before,—knows it all by heart. A sense of weariness and fatigue steals over the mind, and instead of having an ever-fresh charm, a museum assumes all the respectable dulness of a ponderous lexicon.

Revisit, after this experience, the establishment where constant change is the law. You then learn to appreciate the difference. With the perplexity before noted, you are sensible of the intermixture of a new source of curiosity. You no longer think the exhibition dull, or the objects wearisome. Old friends become new objects of admiration when set in a new light, or accompanied by new associates. And thus one learns, at length, to read the secret, and to observe that in constant variety, either of object or arrangement, or of both, lies the main charm of a permanent exhibition.

This principle has been very fully illustrated in the Ceramic Gallery at South Kensington, and the unrivalled display of objects of Persian art, to which we recently called attention, has been a source of very high attraction. But the strain, not only on the will and ability of the managers, but on the financial resources of the establishment, that is thus kept up must be considerable. And especially has this to be borne in mind by the friends and supporters of this valuable centre for æsthetic teaching—in view of the prospect intimated by the estimates for the year—that the grants in favour of South Kensington are more likely to be abated than increased. The great want of accommodation in that restricted set of rooms which the patient and cheerful care of the librarians has made, in spite of all inconvenience, the most accessible and practically useful of any public libraries, so far as the books contemplated in the scheme are concerned, is deplored by the heads of the Government department concerned to find the remedy: but deplored with that helpless resignation which implies that no relief is forthcoming. It may possibly be in consequence of the manner in which the vitality of the Museum proper has been preyed on by certain subsidiary schemes, not always (as in the case of the permanent International Exhibition) evincing the absence of very mature judgment; it may possibly be in consequence of some evil star that sheds its malignant influence over quasi-commercial, quasi-æsthetic enterprise whether in gardens or in music-halls; but, whatever the cause, South Kensington seems not to have passed beyond the stage of battling for existence, and is yet far from having attained the demure and undisturbed repose of its elder sister in Bloomsbury.

We therefore speak rather as inquirers than as critics, of the late attempt to add a sort of glorified Polytechnic Institution to the museum and library. "Conferences" seem to be the order of the day. An old authority tells us that in the multitude of counsellors there is wisdom. If the multiplication of this novel method of imparting information have the same effect, we are on our way to become a very wise people indeed. There can be no question as to the value and the beauty of many of the 4,576 objects which are included in the catalogue of the special loan collection of scientific apparatus at the South Kensington Museum, or rather in the westernmost of the two galleries erected for the defunct International Exhibition. There can be no doubt of the eminence of the men who have given a series of popular lectures in connexion with the display of the Loan Collection. The question which suggests itself more forcibly to the mind is, whether an effort of this nature can bear any adequate fruit as a temporary, not to say spasmodic exertion? Is there not a danger of passing the line which should divide study from amusement? Is it of much use to collect a mass of scientific apparatus, which it would require weeks of daily attention to examine in detail, in order to be visible for six months, and then dispersed to all corners of the world?

It must be remembered that the value and effect on the mind of a collection of scientific appliances is entirely different from that of a collection of objects of art. Study of the latter may be, to some extent, unconscious. The mere habit of beholding the master-pieces of art tends to exalt and purify the taste, where such a faculty exists, and to sow the seed where it has not yet been developed. It is of the very nature of art to train, rather than to teach; to affect the emotions, as well as the intellect; to produce the culture which we call æsthetic, in contradistinction to the teaching which is purely intellectual. And it may often prove to be the case that the more imperceptibly this influence descends on the mind, the more powerful and abiding is its effect. Lord Bacon says that there is a sense of strangeness in all excellent beauty. None but a born sculptor would perceive at the first glance the incomparable superiority of such a fragment of the mighty past as the scorched *torso* of a young female in the British Museum, over the highly-finished and life-like portraiture in marble produced by the best living Italian sculptors. Indeed, by many persons, the French *terra cotta* figures which have lately invaded our galleries,—concrete sins that they are against all purity of taste,—would be more admired, at the first glance, than any glyptic work of the day. But by familiarising the eye with the noblest and purest forms in architecture or in sculpture, with the richest and most harmonious colouring in painting, an insensible education, like that of the infant in the use of its faculties, is carried on. Thus merely to walk day by day through a gallery of well-selected objects of art is, in itself, a sort of education.

With scientific apparatus, however, the case is entirely different. No one is improved by looking at a scientific instrument, unless at the same time he to some extent understands it. There are many objects in the galleries at South Kensington which not only no ordinary visitor, but no scientific man, unless he had studied the particular branch of science which the instrument was designed to further, and unless he were well up to the state of discovery in that branch, would understand at the first glance. Take, for instance, the apparatus designed for obtaining information from the bottom of the sea. Fifteen different appliances for this purpose are exhibited. As far as we observe, there is no illustration of that mode which some explorers think to be the most satisfactory for ascertaining when the bottom is actually touched in great depths, namely, the change of rate at which the line runs out. But let any chance visitor cast his eye on No. 3,015, Capt. Ericsson's self-registering sounding machine, which was perfected by that very able engineer in 1836. What idea would it leave on his mind? So, again, with regard to an instrument which we believe to be destined to increase our knowledge of the hydraulics of the principal rivers and straits of the world to an extraordinary extent,—Revy's current meter. Further than a remark, mayhap, of the exquisite finish that Messrs. Elliot have given to the bronze work, and perhaps an expression of wonder what the little bronze vane was intended to do, who that had not studied the latest works on hydraulics could make head or tail of that valuable and ingenious instrument? We may go a step further: who that *has* studied hydraulics can understand how the instrument is to be safely and adequately slung; as no appliances for rope or wire fastening meet our eye? Thus we light on two out of the 5,000 above objects, either of which it would take five or ten minutes to explain and to understand. In the absence of such explanation, neither of them would produce any effect on the mind, or none but that of a notion of quaint form, or of finished workmanship. So we might go through the list. And it must be borne in mind that each object has, or ought to have, its special claim on the attention. It may be ingenuity of design, it may be delicacy of execution, it may be strength, it may be cheapness, it may be simplicity and readiness for use. Whatever be the special excellence of each exhibit, the object of the Exhibition is unattained unless that excellence be appreciated by the visitors.

Now, it would be idle to expect to attain such an object as this by the temporary display of a collection such as we have had the pleasure of visiting. A sense of bewilderment is the impression at first produced. For those visitors, if such there be, who have the self-command to take a room or a subject at a time, to examine a single class of objects alone, to enter into the design and execution of each, and so to fix on their memory the lessons thus learned, so that the reperusal of the catalogue will be sufficient to recall each successive object to their mind, the benefit to be derived from the exhibition will be of a very high order. How many of these will there be? How many will there be who go, as we before intimated, as they would go to a library, to consult a given book, in order to see the latest outcome of the mechanic's skill in some particular walk of science? And, apart from these two very limited classes, who will derive from a visit to a six-months' show the advantage which such a magnificent collection of instruments and apparatus is calculated to afford?

The inference is, that the exhibition now open at South Kensington is either too much or too little. If it be a merely temporary display, the objects are too many to be usefully grasped by the attention of the visitors, and the time is too little to allow of the full use to which such a collection might be put.

From another point of view, however, the collection has a further claim on our admiration. It is a very superb experiment. It is an unrivalled feeler of public opinion. If it be regarded as the nucleus or the programme of a real industrial museum, it will be a step towards supplying a want which is eminently discreditable to this country. Those of us who are familiar with the care that is taken, on the Continent as well as in the United States, to store up specimens of inventions,—to preserve the visible, tangible elements of the scientific history of the country,—have long deplored the want of an adequate institution of the kind among ourselves. It is true that something of the sort has been attempted in the Patent Museum,—a building which, in spite of its narrow space and structural disadvantages, possesses an extraordinary interest for all mechanical men. Indeed, the Patent Museum has lent some of its most interesting objects to the new gallery. But when we consider what might be effected if the resources of this country were properly applied to the formation of an industrial museum worthy of the name and worthy of the dignity of the United Kingdom, we can only hope that the display at South Kensington may have the effect of educating public opinion to demand something more permanent, as well as something more thoroughly and systematically organised.

For it must be remembered that there is an inherent weakness in all loan collections, a weakness which, in any collection of a scientific nature, is far more deplorable than in the case of any æsthetic display. Partial information in matters of art is better than none at all. Partial information in matters of science is perplexing and misleading, and may even be prejudicial. Now we have plenty of proverbs to the effect that beggars must not be choosers, that it is ill to look a gift horse in the mouth, and the like, that are very applicable in this case. Why should any one lend any scientific apparatus? In nine cases out of ten we shall probably find that the motive of the loan is the desire to advertise. The maker of a new instrument, or the perfecter of an old instrument, naturally wishes to sell as many of his wares as he can. If the opportunity offers him to display them at a

sort of Central Fancy Fair, he is likely to jump at it. By no other means can he obtain so much publicity at so small a cost. Thus the advertising spirit, which, while affording a certain convenience to the public, is one of the great pests of the day, lies at the basis of the accumulation of a loan collection. Next to the commercial exhibits will rank the hobbies—using that word in its widest sense—and including under that designation some of those special instruments of discovery to which science owes so much. A discoverer wishes, and rightly wishes, to bring his discoveries before the world. An opportunity is afforded him by an exhibition such as that in question. He has made a new engine or instrument—he sends it for display. He has invented a new process—he sends something to illustrate the results, or the method, of such process. When we have exhausted these two classes, under all their ramifications, we shall perhaps find some evidence of a third class, smaller in number but loftier in spirit than either of the other two, consisting of men who are really anxious for the advancement of learning, and the progress of science. They love truth for her own sake. They love her whether she reveal herself specially to them, or whether they may only share at a distance in the rites of her chosen priesthood. And they love, not only truth, but mankind. They are ready to spend and to be spent in spreading the knowledge of truth among their fellows. It is not the spirit of proselytism that prompts them; it is not the wish to enforce their own doctrines, or to increase the number or the influence of their own sect. It is something higher, nobler, purer, than any *propaganda*—it is the perception of the power and function of science, and the sincere desire to shed the clear white light of scientific knowledge as widely and rapidly as possible.

It is these men whom the nation should delight to honour. It is these men to whom should be committed the charge, as far as possible, of such an Industrial Museum as we desire to found. Their number may be small. As individuals they may, perhaps must, grade away into the second class previously mentioned. For a man to be a power, of any sort, in the world, he must have enthusiasm, and enthusiasm is apt to embody itself in the hobby. But it must not be a hobby for self-display. That, perhaps, is the best test, the best rule for drawing the line of demarcation. If a man regard his hobby as a sure means of benefiting his fellows,—good speed to him whenever he rides abroad on it. If he regards it only as a method for obtaining greater glory to himself, we cannot affect to mourn at the downfall which is pretty sure to follow. Therefore, while human nature is what it is, we should regard with kindly respect those men who, although undeniably addicted to hobbies, are so addicted to them as to produce a considerable amount of advantage to their fellows.

But for the utilising of this energy we require something far more stable and permanent than a six months' display of apparatus, or a few occasions on which men of science may talk in public for ten minutes or a quarter of an hour a piece. We want an organised, permanent, publicly supported Museum of Mechanical Science. That lectures should be given in connexion with it is a matter that would follow in due course, so that due provision were made for the support of such lectures. But it is obvious that such an establishment cannot depend on the shillings of the public, or the number of chance visitors. We shall be very glad to be proved wrong, but the impression which we have formed from visiting the spot is, that it does not excite any great amount of public interest. If we compare the exertions that have been made abroad, as well as at home, to bring together scientific relics of historic interest, with the result, so far as interesting the public goes, we fear that we shall have to use the word failure. We cannot see that the end is worthy of the means. We are all the more desirous that the effort shall not have been made in vain. And it will not have been so made, whether numbers throng the galleries or no, if it serves to bring out into full display our need of a mechanical and scientific museum, and to bring together elements that may be organised and combined for the supply of that great public want.

There is one point in the exhibition which militates against its scientific character, although it arises rather from the exigencies of the locality than from any purposed feature of the display. This is the interpolation of Mr. Buckland's fish apparatus, between the educational and naval department, and the electric and other scientific instruments. The interest and value of the fish museum are indubitable. Still they form a branch, not of what we understand by scientific apparatus, but of natural history. Their introduction in the circuit of the galleries tends to give a hap-hazard character to the collection. Again, the display of maps is very interesting. Many visitors will look with no small emotion on the few rude lines which represent so many weary days of the noble conflict of Livingstone against fever, climate, fatigue, and savage races. The coloured geological maps of various districts of England illustrate the well-known excellence of our Ordnance Survey. The latest production of the Ordnance engineers, the Jenin sheet of the new map of the Holy Land, is perhaps the most beautiful specimen of hill shading and manuscript map-work that has yet been produced by the Royal engineers of our country. Nor would it be easy to rival it in French, Italian, German, or Austrian work. Yet are we not here rather treading on the province of the Geographical Society, or of the Educational Department of Science? Are maps and plans, however beautiful, part of a collection of scientific apparatus? If so, the whole, not only of the western, but of the eastern galleries, will be required for an extension of the Exhibition; and the Albert Hall itself will have no space to spare for the votaries of science.

CONCRETE AS A BUILDING MATERIAL.*

ROYAL INSTITUTE OF BRITISH ARCHITECTS.

AT the ordinary general meeting of this Institute, held on Monday evening last, the president, Mr. Charles Barry, in the chair, the discussion on Mr. Payne's paper "On Concrete as a Building Material" was resumed and concluded.

The Chairman, at the outset, asked that the speakers should confine themselves as much as possible to the artistic aspects of the question.

Mr. J. P. Seddon commenced the discussion by relating his experience of concrete building in Ireland, in a very out-of-the-way place, where although there was an abundance of good stone, it was impossible to get a builder to build in anything but concrete; for, owing to the wretched weather which generally prevailed, skilled workmen would not stay there. This was on Lord Lansdowne's estate, and although the concrete was made of shingle and pebbles from the sea-shore, the work became perfectly dry. Indeed, all the cottages he examined on the same estate were built of the same materials, with walls 9 in. thick, and they were all "bone-dry." As to making the material seemly, he had employed medallions and plaques of glass mosaic made by Mr. Rust, and costing about 2*l.* per yard superficial. The mosaic of Mr. Salviati was also applicable to the same purpose. The medallions or plaques were let into the face of the concrete walls, pieces of wood of the size and shape required being used when the walls were being moulded to form the recesses to be ultimately occupied by the slabs of mosaic. Between these slabs of mosaic coloured cements were used with satisfactory effect. One great objection to concrete houses was the facility with which the material transmitted sound, particularly through floors. The evil might, of course, be obviated by not using concrete floors, although one great merit claimed for concrete was that it was a material equally applicable for floors and walls. As to the fire-resisting qualities of the concrete he had used in Ireland, blocks of it had passed unscathed through a lime-kiln. This concrete was composed of Portland cement and shingle from the sea-shore.

Mr. Lumsden said that, having heard a great deal about concrete building, he was induced to try it from the representations made by Mr. Tall to the effect that it was much cheaper than stone and lime building. He (the speaker) had tried it in his own county of Aberdeenshire, where stone was very abundant, and where also there was in most parts a good supply of gravel. He tried it first of all for cottage-work, and subsequently for an addition to his own house,—an old castle, three or four hundred years old,—the addition in question being 51 ft. long, 33 ft. wide, and 20 ft. high, with a circular hanging turret at one corner. The cost of this concrete addition had been 350*l.*, whereas the estimates given for the same building in ordinary lime and stone masonry were nearly double that amount. The sum named included partition-walls and everything that would be included in the masonry contract, but did not include the "harling" and slater work. The hanging turret referred to was 6 ft. in diameter and about 10 ft. high, and projected considerably over the corner. Its walls were 9 in. thick, and it was built on a timber framework, which was removed after a week had passed, and the turret remained in position without the corbels, which were afterwards "stuck on." The external coating consisted of one of sand and one of cement, which made a perfectly damp-proof covering. The external surface of the concrete was "harled,"—a method of treatment which was as applicable to concrete as to stone work. As to the use of concrete necessitating the employment of skilled labour, he had no skilled labour at all. He merely sent his "forester" up to London to see what was being done at "Tall's," and after a stay of a few days he returned, and had been doing all Mr. Lumsden's building work since that period in concrete, employing the ordinary labourers of the district at about 17*s.* per week, and thus effecting a saving of from one-third to one-fourth the cost under the old method of building. For floors on the ground level he used first of all a layer of about 6 in. thick of broken stone or road-metalling, then a layer of concrete made in the proportion of 1 of cement to 6 or 7 of sand, the surface being covered with a thin coating of fine cement similar to that used on the external wall. This made a perfectly damp-proof floor, but took about a month to dry.

Mr. E. Wyndham Tarn said his experience was rather against the use of concrete for private houses, and he thought architects ought to be on their guard against the statements made in the prospectuses of some of the concrete builders, who seem to be rather prone to exaggerate. For instance, in the prospectuses of two different patentees, it was stated that the advantages of concrete walls over brickwork were, amongst other things, that they were "half the cost in construction, and ten times as strong"; that they were "impervious to wet and damp"; and that, being one solid mass, sound is completely deadened." The first and second portions of the latter recommendation contradicted each other, for the more solid a wall was built the more readily would it convey sound. Another advertisement stated that concrete did not settle in parts as brickwork did, and that, in fact, there was no settlement whatever, there being no weak mortar joints. He (the speaker) was also told that there were certain warehouses, 60 ft. high, built some years ago, at the rate of 3*l.* 10*s.* per rod, as compared with brickwork at 12*l.* per rod. Now there were about twelve cubic yards to a rod, which would give about 6*s.* per cubic yard as the price of the concrete walling; but as a matter of fact the regular price for concrete, as used in foundations, was about 13*s.* per cubic yard. How, then, could walls be carried up 60 ft. high at the rate of 3*l.* 10*s.* per rod? He had found in his experience that a very heavy item of cost in concrete building was caused by the labour of taking-down, cleaning, and re-erecting the apparatus used; the mere filling-in between the boards took hardly any time, and constituted a very small item in the cost of labour. Then, again, he had found that the success of concrete building was greatly dependent upon the weather, especially in the case of thin walls, for if there was much wet 9-in. or 14-in. walls would require extra time for drying and setting, although, where the walls were 2 ft. or 3 ft. thick, with stone "packing," such as was used in Yorkshire and other stone districts, concrete building was not so much dependent on the weather. Then, again, concrete building could not be safely carried on in winter time, for if the frost got hold of it before it had had time to dry the whole mass would be rendered completely useless. For thin walls he found from experience that concrete was more costly than brickwork, that is if the ballast and cement had to be bought at London prices. As to concrete being "ten times the strength" of brickwork, if it were the case a concrete wall 12 in. thick would be as strong as a solid brick wall 10 ft. thick, which experience had shown was not anything like the case. All he (the speaker) was able to affirm was that if concrete building was very well done it was about as strong as good brickwork, although of course it all depended on the quantity and quality of the cement used. He had lived in a concrete house for the past five years, and he

* See pp. 353 and 431, *ante*.

could not endorse the statements which had been made that concrete was impervious to damp. The house in which he lived had been built without any damp-proof course, which was thought to be unnecessary, but the walls were sucking up the damp to a height of about 2 ft. In his opinion, a damp-proof course was even more necessary with concrete than with brick-work. As to the power of concrete walls for keeping out driving rains, it was said by the patentees that concrete buildings were weather-proof without an external rendering of cement, which was, in fact, only used for the sake of giving a more finished appearance. This statement he had entirely refuted by an experiment he made. He constructed a concrete floor 4 in. thick, made of rather fine ballast, gauged very strongly with cement, and very carefully mixed, in order to make a good experiment; but when it had set, water went through it as it would go through a sieve. As to the tendency of concrete to shrink, he had found the tendency to exist, notably in the case of a flat roof, 7 ft. 6 in. span, 13 ft. long, and 4 in. thick, with two or three T-iron joists thrown across at stated intervals. At the points where these T-iron joists went across there had been cracks ever since, and no sooner were the cracks filled up,—as they had to be once or twice a year,—than further shrinkage occurred, and the cracks again showed themselves. Generally speaking, he was inclined to believe that concrete had an inherent tendency to shrink, irrespective of "settlements," for in the house he lived in there was no settlement, but fine cracks were everywhere manifest. On the whole, he thought that concrete building was unsuited to the thin walls required for dwelling-houses, and that it could only be profitably and suitably employed when used for warehouses and even more massive structures. In such works the "packing," so strongly recommended by Mr. Tall, could be advantageously used. In reply to a question put by Mr. Edmeston, Mr. Tarn said that the concrete of the roof of which he had spoken was composed of 1 of Portland cement to 6 of ballast and burnt clay, costing about 2s. per cubic yard. Whenever burnt clay was used as an aggregate, care should be taken that it is thoroughly well burnt. He agreed with Mr. Seddon as to the tendency to transmit noise, which was one of the properties of concrete buildings.

Mr. Edmeston could not see why concrete, properly made and put together, should have any inherent tendency to shrink. Of course, the soundness of concrete work greatly depended on the materials of which it was composed, and upon the manner in which they were put together. In his experience, whenever concrete had been properly compounded of good materials, he had never observed the tendency to shrink and crack of which so much had been said. He had found that where gravel could be obtained close at hand, a saving of one-third in cost was effected. Proper care should, of course, be taken to select the cement, and to test it before using it, for imperfectly burned cement would "blow," and cause no end of mischief. He could not see why concrete walls "packed" in the manner advocated by Mr. Tall should be stronger than walls built solid with small concrete, seeing that it was the adhesive quality of the cement which gave the strength required. He did know, however, that such walls were very strong, for he had had to cut through some which had been built by Mr. Tall, and the work of demolition was very laborious and costly. One thing always to be borne in mind was, that concrete building did not necessarily require any complicated apparatus,—a few planks would suffice. There was one description of concrete about which nothing had been said in the discussion: he referred to the asphalte and gravel or stone concrete for the beddings of steam-hammers and other heavy machinery, which had been found to be the best thing for the purpose.

Mr. Woodthorpe feared that if concrete were to come into general use for house-building, the "able and enterprising" builders of the East End—and, indeed, of all quarters of London—would make it a convenient cloak for the use of such curious, but somewhat unstable, building materials as old leather boots and tin kettles. Indeed, one of the concrete builders who had taken part in this discussion had made it a boast that he had succeeded in eluding the vigilance of the district surveyor, and had used all kinds of questionable *débris* for "aggregates."

Mr. Cundy was of opinion that, unless in exceptional localities and under exceptional conditions generally, concrete building would not be found to be cheaper and more easily applicable than construction in the ordinary materials.

Mr. Joseph Jennings thought that if concrete were to be used at all largely, it would very generally have to be rendered in cement, and that being the case, it was worthy of note that cement could be decoratively treated without making it a sham. His experience of the use of concrete was that generally speaking it was a more expensive material to use than bricks and mortar, although, provided that a diligent personal supervision could be exercised over the selection and mixing of the materials, there was not the slightest doubt that in many places its use would be more economical. The strength of concrete was really a question of the strength of cement. As to the roof mentioned by Mr. Tarn, he (Mr. Jennings) was satisfied that the fault consisted in bringing together two materials of such dissimilar qualities as iron and concrete. He believed that concrete made of proper materials and properly put together would not necessarily shrink, and wherever shrinkage occurred there must, he thought, be some fault, either in material or construction.

Mr. Gilbert R. Redgrave said that if cement concrete was ever to become largely used as a building material, it must be taken for granted that concrete walling must be made by some system of throwing the material between wooden framing or boards, and this mode of erection implied the use of some mode of stucco treatment for external finish. That fact alone was a very serious obstacle to its use in some quarters. Mr. Payne had suggested in his paper some very ingenious methods of moulding the face of the concrete by ornamental dies; but a more simple and a very effective method was that of breaking up the surface by means of "rough-cast." Another very effective method of decoration in coloured cement was that known as *sgraffito*, specimens of which were to be seen at the back of the new Science Schools, South Kensington, and at the National Training School for Music near the Royal Albert Hall. Mr. Payne had suggested a surface decoration of tiles, the backs of which should consist of dove-tails moulded into and retained by the concrete; but one danger to be apprehended from this mode of treatment was, that water might find its way through the joints to the back of the tiles, and do a great deal of damage.

Mr. Adams said he had for some years past paid considerable attention to concrete building, and Mr. Drake had carried out several works for him, entirely to his satisfaction. The largest floor he had built was 12 ft. 6 in. by 11 ft. 6 in., 6 in. thick, and with a 4½-in. bearing on the walls. There was no iron in this floor, and it stood the test of being jumped upon in the centre with hardly any vibration. He agreed with previous speakers in thinking that the whole secret of concrete building consisted in the use of the best materials and careful and continued supervision. The cement should be selected from the best makers, the ballast should be perfectly clean and free from loam. The concrete might be poured in by unskilled labourers, but it should be done under the watchful eye of a careful foreman. For surface ornamentation he thought a simple form of *sgraffito* might be employed at a cost of only 2s. per yard superficial. If slabs of mosaic or tesselated work were used externally or internally, they might be so used as to dispense with the use of boards or similar apparatus.

Mr. Broughton pointed out a drawing which illustrated what a subsequent speaker characterised as a somewhat acrobatic trick in concrete building. This consisted of a balcony entirely supported on concrete cantilevers, projecting 3 ft. 6 in. from the wall. The cantilevers were 11 in. deep at the ends nearest the wall, diminishing to 3 in. at the outer ends, and were made of concrete consisting of one part Portland cement to six parts ballast. They were attached to the walls some twelve months after the latter had been erected, the only means adopted for fixing being to cut away the thin cement coating with which the wall was faced, and then to let the end of the cantilever come with a straight butt joint against the flat surface of the wall, the cementing material being concrete composed of 1 of Portland cement to 4 of ballast. Three days after the cantilevers were fixed in position, the balcony was tested by three men running along it; it survived the test, and was still standing. As to cracks caused by shrinkage, he had built a large warehouse containing 432,000 cubic feet, but not a crack was to be seen all over the building, and the same remark applied to his own house and to many other buildings. As to embedding the ends of joists in concrete walls, he had done so to the extent of as many as 500 in one building, but they had not caused the walls to split, nor was it possible that they could do so.

Mr. Cockerell said there was a great conflict of testimony as to the damp-resisting and weather-proof qualities of concrete, but these conflicting statements were capable of being reconciled to a great degree. His experience was that the more dense the concrete the greater would be its capillary attraction, and he was therefore of opinion that the best concrete was that which resembled a coarse honeycomb in texture, with as few knobs or points of contact as possible. This kind of concrete would not so readily suck up moisture from the ground as concrete of a finer texture, and although it would let water run through it like a sieve, a very thin external rendering of cement would suffice to keep out the most driving rains. As to cracks caused by shrinkage in concrete, he had built several concrete houses, and had not met with them; but, on the other hand, when one came to build a long garden wall or any similar work in concrete, it would be found to crack vertically at almost regular intervals of 14 ft. or 15 ft.

Mr. Horace Jones.—Your belief is, in fact, that the measure of the non-contractibility of concrete is 14 ft. or 15 ft.?

Mr. Cockerell replied in the affirmative. These cracks were not due to settlements.

Mr. Wyatt Papworth said that one important point, to which no reference had been made in the discussion, was as to the proper quantity of water to be used in mixing different kinds of concrete. He should be inclined to imagine that where shrinkage or cracks occurred in concrete work, too much water had been used.

Mr. Aitchison deprecated the use of iron in conjunction with concrete, particularly when it was exposed or near the surface. Where it was deeply embedded in the concrete, and where it bore but a small proportion to the general mass, iron might be admissible, but under other conditions he thought iron and concrete work would never prove to be sound, owing to the different rates of expansion and contraction of the two materials. The cleaner the ballast used the better would be the concrete. Mr. Leach, the engineer to the Thames Conservators, had caused a quantity of ballast taken from the river below-bridge to be thrown under one of the weirs in the upper part of the river, and allowed it to remain there for several years. When it was taken out it dried perfectly white, and with this ballast Mr. Leech had made very good concrete with only one-ninth of Portland cement. No tests had yet been made to test the relative strength of concrete structures in which iron was embedded, as compared with the same structures without iron, and Mr. Aitchison thought that Government might be memorialised to carry out some experiments of this kind at the dockyards. As to the decorative treatment of concrete, he thought that for ordinary buildings stucco would have to be used, while, for superior erections, tiles or slabs of mosaic work might be used.

Mr. Cates described the manner in which the timber-work of the dome of St. Paul's had been rendered fireproof by means of Brannon's patent stone-felt concrete. This material was applied in a liquid state, and all the timbers (which were of oak) had been completely covered with and embedded in it. Of course, this method of fireproofing timber was only applicable where, as in the case of St. Paul's, the timbers were thoroughly dry and well seasoned, otherwise dry-rot would set in and prove fatal. He thought that Mr. Brannon's material was worthy of extended trial for the purpose of coating iron girders and columns in so-called fireproof erections.

Mr. Payne, the author of the paper, then replied on the discussion, and remarked, with reference to the alleged tendency of concrete to shrink and crack, that in Paris there were sewers several miles in length constructed of concrete, but no cracks had occurred, or the sewers would leak. Again, concrete was very largely used for railway retaining walls of considerable length, and he had never heard of these walls cracking. It was urged against concrete that when it failed it failed more suddenly and disastrously than other materials, but it was forgotten that when it did fail it was generally through what he might call "playing tricks" with it. Things were done with impunity in concrete ninety-nine times out of a hundred owing to the almost miraculous strength of the cement; but if the

cement happened on the hundredth time to be rather poor in quality and a catastrophe occurred, people shook their heads gravely and spoke of concrete as a treacherous material. As to cost, concrete builders stated that concrete buildings could be built at half the cost of brickwork; his experience had not verified that statement, but he had found a saving of ten per cent. in cost. The cost of concrete building would be materially diminished by dispensing with the cumbrous and inconvenient apparatus generally used.

The Chairman, in proposing a vote of thanks to Mr. Payne, said the paper and the discussion to which it had given rise had been most interesting. It was perfectly clear, he thought, that concrete could only be profitably and safely employed under the constant supervision of men well acquainted with the material. There seemed to be a great tendency on the part of concrete builders and others to exaggerate the advantages of the material. He would advise the advocates of concrete not to claim too much for it. Mr. Payne had, he thought, taken a very moderate course in stating the saving effected by concrete to be about 10 per cent. As to the artistic decoration of concrete, he thought that architects and others who used the material should seek to give it its own distinctive treatment, which should be such that it could not possibly be mistaken for what it was not.

The vote of thanks having been carried, it was announced that the last meeting of the present session would take place on Monday, June 12, when the Royal Gold Medal and other prizes will be presented, and Mr. Eastlake will read a paper entitled, "An Historical Sketch of the Institute." This meeting will also be the opening meeting of the Third General Conference of Architects.

EDINBURGH.

IMMEDIATELY succeeding upon the closing of the Royal Scottish Academy follows the meeting of the Church Assemblies. The Established Church, United Presbyterian Church, and Free Church hold their respective parliaments at the same time. The influx of clergymen and their followers is considerable, and it appears strange that the exhibition should be closed immediately prior to their coming. The experiment was made of keeping the pictures a few weeks longer for the benefit of the clergy, but the encouragement given was so small as to cause the Academy to adhere to the former practice of closing during the first week of May. It is evident, therefore, that the love of art, the æsthetic element, does not hold a large place in the estimation of the Scotch clergy. The erection of such a structure as a cathedral upon a certain scale of grandeur will not, therefore, be looked upon by the Presbyterian "Fathers and Brethren," we should suppose, with much favour. The building of the cathedral proceeds slowly,—the centreing of the west doorway has been struck, and the aisle windows begin to appear, and at this slow rate of progress it will be some years yet before the work is accomplished.

We had occasion to remark upon the extraordinary vigour with which the construction of the new West-end Theatre was pushed on, but that vigour has gradually abated since the building was occupied, about six months ago, and the façade is still incomplete. Part of it, however, is built up to the cornice and surmounting parapet, and the large proportions of the parts may be seen; but their largeness does not at first sight appear obvious, owing to the want of a scale by which to measure them. Breadth, size, and simplicity are there, but there is no gradation of parts, the eye takes in the whole at a glance, and it is only when the spectator removes to a distance, and when the proportions of the façade are seen in combination with the adjoining buildings, that their size is fully appreciated.

No time has been lost as to the new façade of the Royal Hotel, designed by Mr. W. Beattie. It is being proceeded with in instalments, and already in the course of about two months one fourth of it is almost finished. There is nothing particularly calling for either commendation or censure about the work; it is commonplace in style. But commonplace although it be, it is not pretentious, which can hardly be said of the recently completed Waverley Hotel to the east of it; but this, we feel constrained to think, is not to be attributed to the fault of the architect, but to cheese-paring on the part of the employer. Nothing could be more out of place in such a street as Princes-street than the paltry, statuette above the centre dormer window flanked by terra-cotta chimney-pots, and the meagre iron shafts on the first floor are equally paltry and unpleasing.

All Saints' Church, Brougham-street, which has since its erection, upwards of ten years ago, remained incomplete so far as the west elevation is concerned, has now been completed by the erection of a narthex having a triforium over it, access to which is gained by an octagon turret. In the original design a massive tower was contemplated, but this feature has been abandoned in the meantime, and the church is complete without it. There is, however, ample space whereon to erect a tower should funds be forthcoming for that purpose. The general effect of the church suffers from the absence of a parsonage which it is intended should fill up an ugly gap between it and the adjoining buildings. The additions have been carried out by Mr. R. Anderson, the original designer of the church.

Operations have begun for the formation of the last of the streets embraced in the City Improvement scheme. The street in question is to be called Marshall-street, and is cut through blocks of buildings between Nicholson-square and Bristo-street. In this street a new Baptist church is to be erected, from the designs of Mr. Thornton Shiells. In style the building is to be Lombardic, it will have a frontage of 50 ft., a depth of 65 ft., and 60 ft. of height. On the ground-floor there will be a meeting-hall, with side rooms. The church proper will be fitted with galleries, and covered by a barrel-vaulted roof. There are three doors in the front elevation, and these and the windows are round-arched throughout, and a considerable amount of foliated enrichment is introduced in the front elevation. Accommodation will be afforded for a congregation of 628 persons.

The City Improvement scheme has been considered a success, and it is, we believe, in contemplation to apply for extended powers. Both the amenity and sanitary condition of the city are open to many improvements, one of which would be the improvement of the neighbourhood of the proposed new college buildings by the widening of Bristo-street, &c. Operations have not yet commenced for the erection of the college buildings, but the surgical wards of the new infirmary are being rapidly pushed on.

At West Craigmillar, to the south of the city, a new Blind Asylum and school has been completed, at a cost of 12,000*l.*, on a plot of four acres in extent, most of which is laid out and planted with shrubs. The front elevation faces the south, and is 160 ft. in breadth, and consists of a centre block, and wings having Mansard roofs. The most marked feature of the design is a circular tower attached to the centre of the south front, and a more unhappy production we have seldom seen; it is 80 ft. in height, and is surmounted by a high-pitched roof and lantern of the most eccentric description. In front of the tower is a portico, with a truncated gable over an arched doorway, above which is carved a large representation of the royal arms. The building contains a workroom 72 ft. by 20 ft., a hall, and chapel 115 ft. by 28 ft., in which an organ has been fitted up. Amongst other things it is intended to train some of the inmates as piano-tuners, and much attention is to be given to their musical training. The designs for this building have been prepared by Mr. Charles Leadbeater.

"Painting" the Lamp-posts. — At a recent meeting of the Marylebone Vestry, Mr. Blythe called attention to the "disgraceful" way in which the street-lamps were painted and repaired. The Vestry had placed some excellent lamps in the new street, Mandeville-place, but they had been painted with some sort of composition that disfigured them. Mr. Hallam considered the lamps an utter disgrace to the parish. He was told that the sum paid for painting was 4½d. each lamp; if that was the case they could not wonder at the two coats of "something" that was put on. Mr. Blyth observed that the amount paid for painting was 3d. per lamp. The Vestry Clerk said that a complaint had been made to the Gas Company on the subject, and they answered that the sum paid by the parish was so small as not to allow the painting to be done "in an artistic manner." The sum paid to the company by the Vestry for lighting, repairing, painting, &c., was 18s. each lamp per annum. The subject was referred to the Works Committee. Marylebone is not singular in this respect.

FROM THE CENTENNIAL.

NOTWITHSTANDING the obloquy that attaches to comparisons, one cannot voluntarily annul experiences. The impression conveyed in my former letter might appear to have no justification on seeing the jubilant and triumphant expressions of the American press here, which, according to "Cable News," have been echoed by the English journals, but I could not forget former openings which I had witnessed, and a notion of numbers from assemblages like those at Sydenham, Epsom, and elsewhere. To-day, however, the papers have altered their tone. The *New York Times* heads its article with "The Great Exhibition.—The Third Day.—The Crowd away, and some of the Deficiencies more apparent. The Sound of Hammer and Saw frequent." The article concludes with:—"The exhibitors in Agricultural Hall are still very backward. Some of the spaces have not yet been filled, but the department has been notified recently that they will soon be occupied." The *New York Herald* says:—"Much of the readiness noticed on the opening day was deceptive. Owing to the bad working of the turnstiles, only 82,000 admissions were registered, an evident miscount, as the street car-lines carried more than double that number to the grounds on the opening day. The attendance on the grounds yesterday is officially reported at 16,400, a mere bagatelle by comparison with the 250,000 on the opening day."

I wonder who got the half-dollars representing the difference between the 82,000 of the "tell-tale" and the estimate of the papers! I asked the conductor of a street-car how many he carried on the opening day, and he told me 825 in eight journeys and a half.

The same paper speaks of a Centennial "unpleasantness," which the *Evening Telegraph* thus describes:—

"*Incidents of the Opening Day.*—The peculiar nature of the American people in their impatience of restraint was painfully illustrated in the grounds yesterday. An effort was made by the great mass of people collected near the west end of the main building to get nearer the ceremonies of opening. The curiosity of those out of the immediate sound of those speaking on the platform caused them to push forward against those in front, until the whole crowd swayed and surged against the ropes stretched across, and broke them. Efforts were made by the officers in charge, and by the military, to make them go back, but they either could not or would not, and then a sham charge was made by the State Fencibles and a company of the 3rd Regiment. Even this latter demonstration had no effect on the irrepressibles, who still pushed on. As a last final resort, a real charge was made upon those who were apparently the most violent in their efforts to break through, but only when there appeared to be great danger of serious disturbance. By these prompt, though severe, means the crowd was compelled to recede to a proper distance, and everything was soon calmed down. Unfortunately in the mêlée there were several persons injured. One man had a bayonet thrust through his thumb, which burst an artery, and caused a very severe and painful wound. There were one or two other parties who received trifling wounds. The whole thing was much to be regretted, as the only circumstance that could mar the perfect enjoyment of the occasion."

The fact cannot be concealed that the Exhibition is in a most incomplete state. "It is a big thing!" I have heard frequently exclaimed, and the "big thing" is placed on a most beautiful site; but they should have been content with something less, or taken more time for its construction and preparation. Two months hence the grounds will be charming; but at present one has to walk the plank over what Mudby Junction must have been when half complete and still presided over by navvies.

The foreign nation that is most complete is Brazil, and a fine show that empire makes in the main building, and more especially in the Agricultural Hall. The Emperor must have been much gratified by the evidences of the industry of his people, as well as their ability to display it in time. Russia and Turkey have not yet unpacked. I suppose they have too much to do at home. Not so Egypt, who has prepared, within a temple on which is inscribed,—"Egypt, the oldest people of the world, sends SOODAN its morning greeting to the youngest Nation,"—a most excellent display of products of its soil and the handicraft of its people. This should inspire hope for its creditors when despair could only be awakened by the inactivity of Turkey.

The display by P. & F. Corbin, of New Britain, Connecticut, and 87, Chambers-street, New York, of locks, latches, butts, hinges, &c., fully illustrates the beauty and taste of these articles made decorative, as your article on the American houses mentions. I was much struck in the French department by the coffres-forts, or safes, of B. Haffner, aîné, made to represent cabinets or other articles of furniture, which could thus be placed in your library or any other room without

making a show of your wealth to your friends or inspiring the cupidity of burglars.

In the Agricultural Hall is a specimen of the imitation horse-hair which is made from the "Delta Moss" of Louisiana. It is a parasite that has been described with great horror by many travellers, but it is thus utilised. There is a soul "of goodness in things evil, would men observingly distil it out."

One of the most interesting objects, to me, is the Log Hut of Miss Emma Southwick. It is built to show an abode of the early settlers, and contains very many interesting relics which have been preserved by their descendants. There is a small cabinet which came over in the *May Flower;* the cradle "in which was rocked Peregrine White, who was born on board that vessel in 1620." There are old clocks, old books, commissions, spinning-wheels, which the owners authenticate. The attendants are in old-fashioned dresses, and it requires little effort of the imagination to picture the early homes of those who a century ago threw off the British yoke.

In the centre of the main building, where the nave and transepts intersect, there are trophies and illustrations of the four quarters of the globe, and "the representative men" are thus appropriated:—America — Franklin and Washington; Europe — Shakspeare and Charlemagne; Asia—Confucius and Mahomet; Africa—Ramses and Sesostris. Some may take exception to this arrangement. I cannot yet speak of the works of art of other nations, as although a catalogue is sold, the pictures and sculptures are not yet numbered. There is no difficulty with our own pictures, as each one has a label giving the subject, the name of the artist, and by whom lent. I cannot go on mentioning what I admire of these, as I believe I should have to give a list of the entire collection.

The American implements in the agricultural department are ornamented in the most artistic manner. The ploughs are painted and varnished in a style that would befit a state carriage, and the shares are polished to make them look like silver. The reaping, mowing, and other metallic implements might be entered at Elkington's, who, by the way, has a splendid display. This decoration would make our rustics stare, and make them doubt whether any good could be got out of an implement so "mighty fine."

A few figures about Philadelphia may be interesting. There are 817,488 inhabitants spread over an area of 129 square miles, traversed by more than 1,000 miles of streets and roads. There are 143,000 dwelling-houses, a number exceeding by 40,000 houses those of any other city in America. The consequences are that the inhabitants are not crowded together; there are rarely any epidemics; and the death rate is only 22·27 per thousand. All this I am assured is the result of the popularity and success of Building Societies. F. S. A.

THE SCIENTIFIC CONGRESS AT SOUTH KENSINGTON.

THE Conferences in connexion with the collection of scientific apparatus have led to many interesting statements.

Holland.

Herr Professor Dr. Rijke discoursed on the historical instruments of Leyden and Cassel. He spoke deliberately in excellent English, remarking, by way of apology, that if any of the audience had to speak in Dutch, they would, perhaps, be glad to go slowly. His object, he said, was to speak of the services his countrymen had rendered to science. He pointed to a microscope on the table, which, he said, was the first compound miscroscope ever made. It was the work of Zacharias Janssen, of Middleburgh, in the Netherlands, somewhere about 1600. There was, too, the original simple microscope of silver made by Anthony van Leeuwenhock, who lived from 1632 to 1723. Then there was the modified instrument with which his wonderful observations on the infusoria were made. At his death it was found that he had made 247 microscopes and 172 lenses unmounted. The chief country to pay him honour was England, where he was made a F.R.S., a distinction, he said, he valued more than anything. Next the telescopes of Christian and Constantine Huygens were referred to, and the marvellous way in which these brothers made lenses. It was with one of these lenses that Saturn's ring was discovered. Dr. Rijke then passed on to some of the instruments of 'sGravesande, who lived 1688 to 1742. His heliostat was the first ever made; his apparatus for showing centrifugal force is singularly ingenious, and is still in use for class-teaching purposes. Professor Rijke worked it to show its action. His study of the velocity of falling bodies is especially deserving attention, if only from the fact that after a long series of experiments, when he found his theory wrong, he rushed in delight to his brother, telling him how glad he was he was quite certain he was wrong, as that was one important step to getting right.

Ventilation.

General Morin, director of the Paris Conservatoire des Arts et Métiers, spoke in the French language upon "Ventilation." He is in his eighty-second year, and full of intellectual vigour. He discussed the literature of the subject, quoting Dr. Reid (1844), Captain Douglas Galton, M. Chaumont, &c. He went on to describe systems adopted in hospitals, *crèches,* schools, and other public buildings in France and in St. Petersburg, including the arrangement which depends upon a *chambre de mélange* for the mixing of hot air with cold before admitting either of them into the room. He disavowed the means ingeniously devised by M. Daniel Collodon for ventilating the St. Gothard Tunnel. In the *salles* of the Corps Législatif tubes beneath the floor opening by orifices not quite beneath the members' seats are largely employed. In a large glass-roofed apartment of M. de Rothschild, at Ferrières, the air which a glass roof sends down in a freezing state in winter is warmed by a number of jets of gas. Different numbers of cubic mètres of air per hour are required for different purposes. In hospitals, for ordinary illnesses, 60 to 70 cubic mètres per hour must be admitted for each patient; the wounded require 100 mètres each; persons suffering from epidemics, 150. In prisons 50 mètres are enough. In ordinary workshops 60 mètres are enough; in unhealthy trades 100 mètres are required per hour. In barracks by day 60, by night 40 to 50. In theatres 40, in assemblies 60. In schools children require 12 to 15 mètres, adults 25 to 30. In stables and stalls the volume required is 180 to 200 mètres. Great losses were occasioned in the Mexican expedition by insufficient ventilation for the horses sent out before the ship *Calvados* was fitted up with proper appliances. General Morin concluded by exhorting ladies who preside over *salons* to preserve the health, beauty, and cheerfulness of their guests by abundant supplies of pure air.

Italy and Science.

The Cavaliere Professore de Eccher said no doubt his audience would wonder why he spoke in English, when on the last occasion he spoke in Italian. He said it was to thank them for their previous kindness. It would have been a matter of regret if, at the first International Exhibition of Scientific Instruments the celebrated apparatus from Florence should not have been described in Italian. The kind manner in which he had been received would be appreciated by his fellow-countrymen. He was now going to speak of modern instruments sent by Italy, and would employ English, as he had to speak of English work. He would first refer to Lord Dudley's astrolabe. To the Italian astrolabes exhibited he also wished to draw special attention. Then he would draw attention to the lens made by Benedetto Bregaus, of Dresden, presented by him to the Grand Duke Cosimo III., and used by Sir Humphry Davy, at Florence, in experimenting on the chemical constitution of the diamond. Averani and Targioni had, however, previously succeeded in vaporising the diamond. Then he wished to refer to the barometrograph of Felice Fontana, made in the end of last century, and briefly to his thermometrograph and other self-registering instruments. Next the following among Nobili's instruments were shown and described: his astatic galvanometer, another instrument for hydro-electric currents, and his magnetoscope; then his models of thermo-electrical piles, one of which was of the greatest use to him in experiments on the radiation of heat. In 1822 he made a globe round which there circulates an electric current, illustrating the magnetic phenomena of the earth. Professor de Eccher went on to compare the work of Nobili and Antinori on induction with that of Faraday. Faraday, no doubt, was first; but, hearing through the French Academy of his work, they repeated his experiments, and in some cases obtained results he did not. Hence the first magnetic-electrical machine was made by Nobili and Antinori. Working the machine,—that is, removing the keeper,—and showing the spark, Professor de Eccher said, the first spark it gave forth was on January 13, 1832. Turning to mechanics, Amici was spoken of, and his excellent microscopes and telescopes were referred to. Then, in conclusion, Matteucci's galvanometer was brought to the front, the instrument with which he conducted the experiments which, in 1844, led to his discovery of the muscular current. Before sitting down, Professor de Eccher expressed his regret that Italy had not represented herself more adequately in the exhibition. Florence alone, the birthplace of physical science, had contributed.

Prime Movers.

Mr. Bramwell, F.R.S., read a paper on prime movers. First he reviewed the motive powers used in ancient times—irrigation by the tread-wheel or some such machine ("Egypt, where thou wateredst with thy foot."—Deut. xi. 10), or tortured galley slaves, 50,000 of whom would be required to give a force equal to 8,000 h.p. of marine engines. Then he divided prime movers, excluding light and electricity, into powers which depend on wind, water, or heat. Turbines and hydraulic rams are moved by the impact of water; in other cases water acts by weight or pressure; sometimes streams of water induce currents, as in the jet pump and the *tombe d'eau;* force is gained from falls, tides, and from the oscillation of the waves. The wind always works by impact, but heat by various ways. Heat developed by combustion may be applied to raise steam, or, as in the Giffard injector, to perform work by the currents induced by the flow of steam. Air and gases may be raised in temperature, and their expansion used as a force; and so may the rapid expansion of explosives. The heat of the sun may be applied to the production of power, as in the sun-pumps of Solomon de Caux and of Belidor, or the radiometer of Mr. Crookes. But, in fact, the great source of motion is the sun. The sun has raised the water by evaporation to the height from which it falls to turn the wheel; the tides rise by the influence of the sun and moon; the winds blow in obedience to changes of temperature induced by the sun; and Stephenson's *dictum* about coal, that it was the bottled-up rays of the sun, was true. The people of Laputa, who were engaged in extracting sunbeams from cucumbers, sought what was as really in them as in the sulphide of calcium tubes. The sailing of ships and the winnowing of grain were early instances of the employment of the wind; the water-wheel of the use of water. When falls are more than 40 ft. or 50 ft. high the wheel becomes large, slow, and expensive. Recourse should then be had to water-pressure engines, engines in which pistons move in cylinders, and, being pressed alternately in opposite directions by the head of water, set up rotary motion in the machine, as if the pistons were driven by steam. Much, however, may be done by the use of the turbine, of which the well-known Barker's mill may be looked upon as the germ. The utilisation of the rise and fall of the tide is described by Belidor (1737), who gives drawings of an arrangement of channels, so that during both the rise and fall of the tide the wheel revolves in the same direction. The enormous energy of the tide daily ebbing and flowing round our shores ought to be used more than it is to save our coal. Lord Dundonald (better known as Lord Cochrane) obtained a patent for propelling a ship by the use of cylinders containing mercury, the oscillations of which were to cause a vacuous condition in the cylinders, and so give motion to an air-pressure engine. Lately the apparatus of Mr. Tower has been produced; and a boat had been driven (it was said) against the wind at two or three knots an hour. Coming to the use of the wind as a motive power, Mr. Bramwell said the windmill was a comparatively modern introduction. He recommended the addition of a windmill to factories, to relieve the steam engine and save fuel. The Americans use in their sailing-ships a windmill to pump, to work windlasses, &c., in the place of the donkey-engine or the steam-winch. As for heat as a motive power, the sun's rays had been directly used for fountains. In the day-time they expanded the air in a box and drove out the water; at night the air became cooled and contracted, and the water returned. The heat of the sun was for the purpose intensified by lenses. The temptation to bring into practical use a machine of this character was very great. In a lecture delivered by Dr. Siemens to the British Association at Bradford, he said that the solar heat, if

fully exercised all over the globe, supposing that globe to be entirely covered with water, would be sufficient to evaporate a layer 14 ft. deep of water per annum. Now, assuming 10 lb. of water evaporated from the temperature of the air into steam for 1 lb. of coal (a much larger result than, unhappily, is got in regular work), this would represent an effect obtained from the sun's rays on each acre of water equal to the combustion of 1,680 tons of coal per annum, or about 92 cwt. of coal per twenty-four hours, or enough to maintain an engine of 200 gross indicated horse-power day and night all the year round. When, however, we consider the effect of the sun, not upon the surface of the water, but upon the earth, and deal with its power of producing heat-giving material, the result compares very unfavourably with the work done by the sun itself; and this, no doubt, arises very greatly, first from the fact that the sun is frequently obscured, and second from the fact that a large portion of the energy of the sun is spent in evaporating moisture from the ground, and not in the direct production of combustible material. If we take the sugar-cane we find that in extremely favourable cases as much megass and sugar together is produced as would equal about 5 tons of good Welsh coal. Coming to our own country, and dealing with a field of wheat, the wheat and straw together may be taken as being equal probably to about 2 tons of coal per acre as a *maximum*. The statements made as regards the production of timber per acre per annum, when grown for the purpose of burning, are very various, but the best average is that in this country there is produced as much wood as is equal in calorific effect to about 1½ ton of good coal per acre per annum. Comparing these productions of heat-giving material with the energy of the sun as shown in the evaporation of water, one sees how tempting a field is that of the direct employment of the solar rays as a source of power, more especially when it is remembered that those rays are obtained from week to week and year to year without having to wait the slow growth of the fuel-destined tree.

NOTES FROM MANCHESTER.

A "BUILDERS' Shelter for Cabby" has been recently erected in the centre of Piccadilly, opposite the portico of the Royal Infirmary. It is the first of its kind in Manchester, and is a neat structure of wood and glass. Its cost has been defrayed by Mr. Richard Haworth, and it is said to be much appreciated.

The new Victoria buildings, now being erected near the Royal Exchange, are proceeding very slowly; but it is understood that a contract has been entered into by the Company with Messrs. R. Neill & Sons for the whole of the works above the shop-fronts and for the hotel, and it is hoped that greater progress will now be made. The works so far have been let to the several trades direct.

The new building on iron stilts, at the corner of St. Mary's-gate and Deansgate, is approaching completion. The style is "Victorian Gothic," the circular corner having a truncated conical roof, within one side of which rises a huge chimney-stack, which sadly mars its appearance. In the event of a fire taking place in the corner shop, the firemen will wisely give it a wide berth.

In Deansgate, opposite the Barton Arcade, is a large stone-fronted block of shops and offices of a very solid appearance. The style is of French origin, with a profusion of carving. The front is carried over the shops on elliptical arches, without iron girders behind, and is, therefore, more ocularly satisfactory than those which have their construction hidden. Lower down Deansgate, at the corner of John Dalton-street, is the large building in course of erection for the Union Land and Building Company, in a very, very late Gothic style, such as one seldom sees out of our university cities. This, standing here alone in its glory, seems to be out of place in the busy crowd.

It is just publicly announced that the large plot of land near the cathedral, on part of which Ben Lang's Music Hall formerly stood, and which has been lying vacant for two years, eating its head (85,000*l.*) off, has just been sold to a company, and it is to be hoped that now a move will be made to cover it with substantial buildings. Having a long river frontage, it might become very valuable when the proposed steam navigation of the river is adopted. A proposition has recently been made by the Mayor to name the new hall, which is rapidly approaching completion, the "City Hall" rather than the "Town Hall," on the ground that now that the out-townships are incorporated with the city, as each of them has its own town-hall, some distinction is necessary to prevent confusion, and a vote was taken in the Council at their last meeting in which the members were so equally divided, that it was determined to adjourn the consideration of the subject, so as to give the public an opportunity of expressing its opinion, which, so far, seems to incline to the old name of "Town Hall," with which we fully agree. The old Town Hall, with the land on which it stands, is to be sold.

The Corporation has at last become alive to the loss and inconvenience arising from the situation of the Reference Library in Campfield, and a proposition recently made in the Council to relegate it to the attics in the new Town Hall having met with public ridicule and condemnation, it has been determined to seek a more central site on which to build a new library, &c., and the town clerk is advertising for 2,000 yards of land suitable for the purpose.

Although the Salford Corporation have, some time since, selected the kind of tram-rail they intend to adopt, yet the Manchester Tramway Committee are still undecided as to what they shall adopt, and have recently caused a number of models to be exhibited in an attic in the new Town Hall. With one or two exceptions, there was nothing either good or new, but there was one model shown of "Barker's patent rail and continuous chair" which seemed to be both. It is pretty generally allowed now that a tram-rail must have a continuous support throughout its length, and that that support must not be wood, which is found to require renewal in about three years on an average. The rail and chair mentioned has its steel rail T-shaped, with a groove for flanged wheel near its centre, and resting in and upon an inverted Λ-shaped cast-iron continuous chair, the rail and chair keyed together by the web, and of equal long lengths to break joint. This construction offers great facilities in laying down, and is likely to be durable. Whichsoever is adopted, it seems a pity that the Salford and Manchester tramways, which are to run in conjunction, should not have the same construction. Salford is said to have adopted what is known as the Leeds No. 2 system.

The prospectus is just issued of another attempt to float the property known as Manley Hall and Park, of sixty acres, into a limited company, for the purposes of a winter garden, &c. There is to be, besides the conservatories, which are justly celebrated, a concert-room, lecture-theatre, reading-rooms and library, art galleries, gymnasium, skating-rink, archery, croquet and bowling green, and a permanent orchestral band. Also, a large hall in which to hold agricultural and horticultural exhibitions, with a school of horticulture attached. For all these purposes, it is proposed to raise a capital of 200,000*l.*, of which 120,000*l.* are to be the purchase money of the land, and 60,000*l.* are to be spent on the erection of buildings for the winter garden, &c. It is hoped that the attempt will meet with success, and the remembrance of the Fullerian fiasco of last year be blotted out. The gardens have for some time past been opened to the public.

The works for the Cheshire lines extension, and the Lancashire and Yorkshire branch line to Bury, are being pushed forward as rapidly as possible. For the purposes of the latter, land belonging to Lord Derby's estate in Manchester, of the value of 178,313*l.*, has had to be taken, including buildings and severance, of an area of 83¼ statute acres.

The filthy rivers,—Irk, Medlock, and Irwell,—remain the common sewers of the town.

E. G.

Another Suggestion on the Paving Question.—A correspondent of the *Metropolitan* suggests that our busy streets should be paved with a combination of wood and asphalte. He believes that "a composite roadway of asphalte for the wheels and wooden blocks for the space between is the only solution of the problem for level roads; while for declivities it would be best to have asphalte for the wheel-tracks and granite stones for the space between. Thus we should have the minimum of friction for the wheels and the best foothold for the horses." We are afraid that a roadway consisting of alternate longitudinal strips of wood and asphalte, or granite and asphalte, looks better on paper than it would prove in practice.

THE VIADUCT TERMINUS HOTEL, HOLBORN.

VISIT OF THE ARCHITECTURAL ASSOCIATION.

ON Saturday afternoon last the Architectural Association visited the new hotel which has been for some time past in course of erection on the Holborn Viaduct, at the north end of the City Terminus of the London, Chatham, and Dover Railway. The building, which will cost about 120,000*l.*, is being erected by the London, Chatham, and Dover Railway Company, by whom it will be let to Messrs. Spiers & Pond. It contains 170 bedrooms, twenty-two reception-rooms, besides large coffee-rooms and billiard-rooms. The contract for the completion of the building expires on the 14th of November next, and its occupation will commence at Christmas. We are informed that the success of the building as a commercial speculation is so far assured that it is proposed to erect an additional wing, or, more properly, a detached block, in the rear of the east end, on or near to the spot where Green Arbour-court existed before the Viaduct was built. This detached block will cost an additional sum of 30,000*l.*, and will be connected by an iron bridge or bridges with the main building, a narrow thoroughfare leading to the side-entrance of the terminus intervening. Mr. Lewis H. Isaacs, the architect, was present on Saturday last, and accompanied the visitors over the works, Mr. Till, the clerk of the works, and Mr. Smethurst, the contractor's foreman, being also in attendance. The building has a frontage towards the Viaduct of 235 ft., and a depth from back to front of 70 ft. It is carried by wrought-iron girders over a low-level railway which connects the London, Chatham, and Dover line at Ludgate-hill with the Metropolitan line at Farringdon-street. These girders are necessarily very large and heavy, owing to the great weight of the superstructure to be borne; and although they had to be got into position without the slightest interruption to the traffic on the railway below, consisting of about 260 or 270 trains per day, not the slightest accident occurred. The ground-floor of the building is on a level with the Viaduct roadway, and also with the platforms, and is principally devoted to the purposes of the railway, including a large and lofty booking-office, together with waiting-rooms, ladies' rooms, and other offices. At the east end of the ground-floor is the restaurant and buffet, 74 ft. long, 30 ft. wide, and 20 ft. high. The walls of this apartment have been decorated by W. B. Simpson & Co., of West Strand, with Maw's tiles and majolica, from the designs of the architect, at a cost of 2,000 guineas. The joinery and fittings of this department are of walnut and ebony, and are from the workshops of Mr. Drew, Christopher-street, Hatton-garden, and are excellent in material and workmanship. Below the ground level there are a lofty basement and sub-basement, which will be used for the storage of wine, beer, coals, &c. These lofty basements were a necessity of the site, as the footings of the building had to be put in at a level of about 30 ft. below the ground-floor line, namely, on the blue clay, the Corporation having gone down to that level for the foundations of the Viaduct. The necessity of going to such a great depth absorbed the greater portion of a sum of 40,000*l.* Mr. Isaacs stated that for the planning of the booking-offices, Mr. Mills, the railway company's engineer, was responsible. The booking-offices are approached by vehicles under a covered way or loggia running parallel with the Viaduct, and having entrances at either end. This loggia or colonnade extends nearly the whole length of the ground-floor of the façade. To the east of the restaurant is the principal entrance to the hotel, giving access to the hall and staircase, a "service" entrance being situated in the rear of the building. The principal staircase is 20 ft. wide, and the steps are of Portland stone. In order to give the appearance, as well as the reality, of strength, the stairs are carried up on iron girders, the outer one being intended to do away with the insecure appearance presented by stone stairs supported only at the wall ends, and the inner one, or that nearest the wall, being adopted as a precautionary measure in case of the settlement of the party-wall which forms one side of the staircase, this party-wall having been built beforehand, and not going down so deep as the walls of the hotel. Ascending the grand staircase the hall and central corridor on the first floor are reached. This corridor will receive ample light by means of well-holes and by windows on one side. The principal coffee-

room is on this floor. This is a fine apartment, measuring 63 ft. long, 36 ft. wide, and about 26 ft. high,—extending in height through two stories. The walls will be decorated with Mexican onyx marble, and the ceiling will be enriched with carton pierre and decorated in colour. Adjoining there will be a large public billiard-room, 50 ft. long by 30 ft. wide, to contain four tables; a private billiard-room, smoking-room, reading-rooms, and several sitting-rooms. On the second floor is a suite of rooms designed for Masonic purposes, consisting of lodge-room, "a convenient room adjoining the lodge," and a banqueting-room. The remainder of this floor, and the third, fourth, and fifth floors are devoted to bed and sitting rooms. The sixth or top story is devoted to the service of the hotel, and contains the kitchen and all offices pertaining thereto, as well as a large number of bedrooms for the servants. The top story of a building of this kind is, in Mr. Isaacs's opinion, the proper position for the culinary offices, for not only are good light and fresh air obtainable, but the rest of the building is rendered free from the odours which would pervade it were the kitchen in the basement or on the ground floor. All comestibles, coals, and luggage are raised by a powerful lift, and there is a separate lift for passengers. In addition to the principal staircase there are two or three smaller staircases for the use of servants. Bath-rooms, waterclosets, and lavatories are provided on each floor. Each floor will have its own distinct "service," each apartment or suite of apartments communicating with one of the "service-rooms" which are provided for each floor. Electric bells will be the medium of communication, and in order to facilitate repairs or to remedy defects, the wires will be left exposed and readily accessible. The same rule, however, is not to apply with regard to the gas-pipes. The corridors on each floor are of iron and concrete "fireproof" construction. The iron-work has been supplied partly by Mr. Matthew T. Shaw, and partly by Messrs. Westwood, Baillie, & Co. The façade is Italian in style, and is wholly of Portland stone. The back portion of the buildings is in white Burham bricks, perfectly plain, but is an excellent specimen of brickwork. Indeed, the brickwork throughout is good, even in the partition walls, and was highly spoken of by the architect, who said that the contractor, Mr. William Webster, was noted for the excellence of his brickwork. The façade has two slightly projecting pavilions at either end, surmounted by Mansard roofs, and the centre portion of the building has pilasters running through three stories between the windows, a series of panels between the first and second floor windows having sculptured representations of the arms of the different cities and towns through which the London, Chatham, and Dover Railway passes. These heraldic devices are carved in bold relief, and remain the natural colour of the stone, but the flat ground of the shields is covered with leaf-gold. An interesting point in connexion with the building is that it is probably the only structure of so large a kind which has been erected without the usual scaffolding. The Corporation of London, it appears, refused permission for the necessary hoarding, declining to allow the pavement to be obstructed for so long a time as that required for the erection of the building. Necessity being the mother of invention, Mr. Webster designed and constructed two steam-cranes or derricks with long arms, the largest one of the two being capable of, and actually accomplishing, the hoisting of the chimney terminals, and bedding them in the exact position required,—a height of upwards of 80 ft. above the ground-line. These steam-cranes travelled on iron rails laid down on a gantry level with the first-floor, the public footpath being maintained underneath the gantry. This mode of construction is a novelty in London. The visit was very instructive and pleasant, thanks to the courtesy of Mr. Isaacs, although, as he said, the visitors were rather too late to see much of the constructive details, and rather too early to see the decorative features of the structure.

We shall give illustrations of the building in an early number.

Hornsey-road Schools.—Mr. F. K. Wallen, architect, has been selected by the Islington Guardians out of a list of eighteen candidates, to prepare plans and superintend the alterations and enlargement of the schools in Hornsey-road.

RICHMOND NEW WATERWORKS.

WE mentioned briefly in our last that the works at Richmond had been commenced. A bore-hole of 3 in. diameter has already been sunk into the chalk on the site of the proposed well. It discharges forty gallons of water per minute, making it seem likely that such a well as it is proposed to construct will yield an enormous volume of water. Messrs. Russ & Minns have sent us the following particulars respecting the well, which will doubtless interest our readers:—The first 100 ft. from the surface of the ground will be 8 ft. 6 in. internal diameter, lined with brickwork; the next 85 ft. will be 7 ft. internal diameter, also lined with brickwork. From this depth cast-iron cylinders of 6 ft. 6 in. will be carried down for a further depth of 40 ft., whence they will be reduced to 5 ft. diameter to the chalk, which will be reached at a depth of 265 ft. from the surface. The chalk being reached, a bore-hole of 24 in. diameter will be sunk for a depth of 150 ft., making the total depth of the well 415 ft. In the event of the highly improbable contingency of a sufficient supply of water not being obtained, the 5 ft. cast-iron cylinder will be carried a further depth into the chalk, and lateral headings driven to intersect the water-bearing fissures. By the side of this main well another well of 8 ft. 6 in. diameter will be driven to a depth of 110 ft., in which the pumps will be fixed, the two being connected by a heading. The depth of the various strata passed through, as ascertained by boring, is as follows:—

Made ground and gravel	20 ft.
London clay	178 „
Mottled clay	38 „
Sand	29 „
Chalk	150 „
	415 ft.

TEWKESBURY ABBEY RESTORATION.

A SPECIAL meeting of the committee and subscribers has been held, for the purpose of taking into consideration an amended plan for the arrangement of the choir prepared by Sir Gilbert Scott. At the last meeting there were three plans submitted, viz.: 1st, terminating at the western end of the eastern pier of the tower; 2nd, extending about half-way across the transept; 3rd, terminating at the western end of the western pier; and the plan now submitted extended the choir about half-way across the western piers of the tower. After considerable discussion it was proposed by Sir George Prevost, seconded by the Rev. C. W. Grove, and resolved with but one dissentient, "That the committee adopt the last amended plan of Sir Gilbert Scott as regards the extension of the choir and the arrangement of the stalls, requesting him, however, to substitute very light and open screens for the old panelling." The question of the position of the altar was then discussed at great length, and after an inspection of the choir, and a comparison with the different plans, it was proposed by Mr. Garrison, seconded by Mr. Fredk. Moore, and carried *nem. con.*, "That the question of the position of the altar-table be referred back to Sir Gilbert Scott, with a request from the committee that he report his own distinct opinion whether the communion-table should be placed in the extreme east, as shown in his original plan, or in the chord of the apse, or advanced in the centre between that and the east, as shown on the plan now produced." A plan of the paving of the choir was also adopted, and the question of lighting, either by pendent gaseliers from the roof or arches, or by standards, was unanimously decided in favour of the latter principle.

Two interesting discoveries have lately been made in the Abbey. Near the foot of a pillar north-west of the tower, the workmen employed in the restorations turned up the upper portion of a coffin-lid, on which was still remaining the greater part of a tilting helmet, on which the head of a monumental effigy formerly rested. The colour remains upon the unmutilated portion of this, and it has been suggested that this part represents the Prince of Wales's plume as it used to be delineated in Mediæval times. If this be so, then the coffin which it covered was possibly that of the unfortunate Prince who was slain so cruelly after the Battle of Tewkesbury. It was also thought desirable that the Clarence vault should be opened before the commencement of arrangements for laying the new pavement. On removing the large slab behind the altar, a flight of steps was disclosed leading into a vault with a depressed arched roof, and measuring 9 ft. long, 8 ft. wide, and 6 ft. 4 in. high. The pavement of this vault consists of encaustic tiles, and in the centre a long cross is formed of heraldic designs, some of the coats of arms not having been previously discovered in the Abbey. On the southern side of the vault is a stone coffin containing a large portion of two skeletons, the skull of one of which is perfect. These are supposed to be the remains of the Duke and Duchess of Clarence.

GLASGOW NEW POST OFFICE.

THE work of extending the Glasgow Post-office accommodation, which has been so long delayed, and for which there is very pressing need, is now likely to be proceeded with, as the contract for a portion of the work has been obtained by Mr. Jas. Grant, jun., of Glasgow. Mr. Grant's contract includes the erection of the building on the present unoccupied ground, the demolition of the old portion of the premises, and re-erection, but not the taking down and rebuilding of the newer portion at the corner of South Hanover-street and George-square. In the contract is included every requisite for the completion of the portion of the building indicated, viz., masons' work, joiners' work, ironwork, plumbing, plasterer's and slater's work.

SALTAIRE.

NEW buildings intended to serve as Congregational Sunday Schools, and erected at the sole cost of Sir Titus Salt, bart., have been publicly opened at Saltaire. The buildings are Italian in style, harmonising with the rest of the buildings in Saltaire; but little exterior embellishment has been introduced. On the ground-floor there is an assembly-hall, 85 ft. by 40 ft., from which open ten class-rooms, five on each side of the building, a vestry, and large lecture-room. Occupying an elevated position at one end is a platform-desk for the superintendent, while opposite to it, in a recess between the two entrances, is a raised gallery for the infants. Running round the assembly-hall there is also a gallery, which is approached from the two entrances by stone staircases with ornamental balustrading, and into this gallery open twelve other class-rooms, five on each side, corresponding with those on the ground-floor, and two of larger size above the lecture-room. The capacities of the various class-rooms are as follow:—Sixteen of them seat twenty-five scholars each; four seat forty each; and the two largest eighty each; giving a total capacity of 720. The assembly-hall will seat, in the manner described, about 800 scholars. It will thus be seen that the leading idea of Sir Titus Salt and his architects is, that the whole of the teaching, except, perhaps, that of the infants, shall be carried on in separate rooms. The entire cost of the structure, inclusive of the value of the site and furnishing, will be little short of 10,000*l*. The amount required for the latter item, estimated at about 600*l*., has been furnished. The contractors of the building have been,—Masons' and joiners' work, Messrs. John Ives & Son; plumbers' work, Mr. S. Rushworth, jun.; plasterers' work, Mr. James Duckworth; slaters' work, Messrs. Ridge & Hodgson; painters' work, Messrs. Dyson & Proctor. Messrs. Lockwood & Mawson are the architects.

SOLUBLE GLASS FOR COATING WOOD, BRICKWORK, AND METAL.

THE manufactory of soluble glass of Van Baerle & Sponnagel, of Berlin, recommends a coloured soluble glass in the form of a solution, which may be applied as a coating for the above materials. According to a communication in the *Deutsche Bauzeitung*, it is necessary, in using this solution, that the surfaces to which it is to be applied are dry, free from fat, glue, rust, or resin. An addition of lime or of heavy spar is especially recommendable; the silicate of lime or barytes then forming is insoluble, making the coating weather-proof. To give it a colour, any purely mineral colours may be added; for instance, all pure, natural, and artificial earth colours, such as ochre, red earth, and green earth, &c., ultramarine blue and green, zinc-white and zinc-green, soot, &c. From 20 to 25 per cent. of the volume of the colours added, mixed with powdered lime or heavy-spar, to which the double quantity, equal to 24 to 28 per cent. of soluble glass, has been added, are sufficient to make the colours fit for laying on.

The price of the carbonate of soluble glass being from 6s. to 7s. per cwt. and of potash of soluble glass from 14s. to 15s. per cwt., the cost of soluble glass required for a surface of 100 square mètres would be from 0·45s. to 0·90s., to which must be added the price of the colour chosen, and the powdered lime or barytes. The mass, after being carefully mixed, must be put on thin, the thinner it is the longer it will stand. By repeated coats, the surfaces are completely covered. The soluble glass colours adhere quite as well on cement plaster as on gypsum; if the latter is unprotected against rain it is necessary that the surfaces, before putting on the coating, should be washed first with luke-warm solution containing ½ to 1 per cent. of soluble glass, with a sponge, and after that rinsed with clean luke-warm water.

BUILDING MATTERS IN LEEDS AND DISTRICT.

A FEW weeks since a movement was commenced for the establishment of a Builders' Exchange in connexion with the Royal Exchange, Leeds. The proposals received a large amount of support from all branches of the building trades, and the principal firms in the district have been enrolled as members. The Exchange is held every Tuesday at three o'clock. The attendance last week was good, and business was reported to be lively. The brickmakers are full of orders, and are unable to satisfactorily cope with the demand. In the cabinet trade, work is almost at a standstill, the trade unions having resolved to maintain the strike. There is no other dispute in the trade in Leeds; and at Bradford the masons' labourers have resumed work pending the settlement by arbitration of the dispute between them and their employers. No public buildings of importance are at present being erected, but the prospectus of the company for the erection of the theatre and opera-house, Leeds, has been issued. The proposed site contains nearly 3,400 yards, and has two frontages of 162 ft. and 210 ft. respectively. The plans have been prepared by Mr. G. Corson. At Goole, the Bishop of Beverley has laid the foundation stone of the church of St. Thomas of Canterbury. It is to be of white brick, with black dressings, the style being plain Gothic. Messrs. Goldie & Child are the architects. Notwithstanding the almost unparalleled depression of trade in the worsted district, there is a great activity in the Bradford building trades. Among the principal buildings in course of erection are the Union Wool Warehouses, and large warehouses for Messrs. C. Semon & Co. The Society of Friends are building a meeting-house, and the corporation are erecting the second half of the covered market, with premises for the Central Free Library, from designs by Messrs. Lockwood & Mawson. The same architects are carrying out the erection of the Liberal Club. A large number of shops are in course of erection on an extensive scale, one for Mr. G. Thorpe, after designs by Messrs. Hope & Jardine, stands upon a site recently purchased for 22,000*l.*, or 43*l.* per yard. Messrs. Knowles & Wilcock have designed a pile of shop premises at Sun Bridge; and Messrs. Williamson & Gaunt's French Classic plans are being carried out in the block of shops and warehouses on the old Piece Hall property.

REGISTRATION AND CLASSIFICATION OF HOUSE PROPERTY.

WE recently published in the *Builder* a paper read by Mr. John Cowan, builder, Glasgow, read before the Architectural Section of the Philosophical Society of Glasgow, in which he sketched out his scheme for the registration and classification of house property. At that meeting Mr. Cowan, with Messrs. Honeyman, Sellars, D. Thomson, and Forsyth, architects, were appointed a committee to consider the best means of carrying the scheme into effect. At a subsequent meeting of the committee, it was thought desirable to add to its number gentlemen connected with the various professions and trades interested in the condition of house property, and accordingly the names were added of Mr. John Erskine, writer (who had assisted Mr. Cowan in the preparation of his paper); Mr. Donald Fisher, writer; Mr. James Watson and Mr. R. Dempster, masons; Mr. Thos. Kay, joiner; Mr. J. L. Selkirk and Mr. R. D. Downie, factors; Mr. A. A. Ferguson, representing the Merchants' House; and Mr. John Baird, architect. The committee met on Friday last at Mr. John Honeyman's office, when that gentleman resigned the convenorship, owing to a pressure of business and other engagements, Mr. Councillor Selkirk being appointed to the office in his stead. The meeting expressed itself strongly in favour of the scheme, and those present pledged themselves to the formation of an association for practically carrying out Mr. Cowan's suggestion.

APPROACHING CONFERENCE OF ARCHITECTS, 1876.

THE following is the settled programme:—

Monday, June 12th, 8 *p.m.*—Opening meeting. Presentation of the Royal Gold and Institute Medals and Prizes. Opening address by Mr. Charles Barry, President R.I.B.A., F.S.A. Paper by Mr. C. L. Eastlake, Fellow. Subject, "Historical Sketch of the Royal Institute of British Architects." The President and Council will receive gentlemen attending the Conference in the meeting-room between 7·30 and 8 o'clock.

Tuesday, June 13th, 11 *a.m.*—Visits to Improved Dwellings, as follows:—11 a.m., Mr. Allen's, Manor-road, near Stoke Newington Station, G.E.R., from Liverpool-street Terminus. 12 noon, Industrial Dwellings near Bethnal-green Station, G.E.R. 1 p.m., Peabody Buildings, Southwark-street.

3 *p.m.*—Meeting. Subject, "Improved Dwellings" and "Artisans' and Labourers' Dwellings Improvement Act, 1875." Papers to be read by Mr. George Vulliamy, Fellow, London; and Mr. F. Chancellor, Fellow, London. Chair to be taken by Mr. George Godwin, Fellow, F.R.S., F.S.A.

7.30 *p.m.*—Lecture by Mr. Edmund Sharpe, M.A., Fellow, will be given before the Architectural Association, on the Architecture of La Charente, illustrated by drawings made during the last excursion of the Association.

Wednesday, June 14th, 2 *p.m.*—Visit to Messrs. Cubitt's workshops, yard, &c., Gray's-inn-road.

8 *p.m.*—Meeting. Papers to be read by Mr. W. Burges, Fellow, on "The Importance of the Study of Greek Art and Literature to the Practice of Gothic Architecture;" and by Mr. R. P. Pullan, Fellow, on "Greek Art, illustrated by its Monuments." Chair to be taken by Professor E. M. Barry, R.A., Fellow.

Thursday, June 15th, 11 *a.m.*—Visit to Westminster Abbey, by permission of the Very Rev. the Dean. The party to assemble in the Chapter House, from whence they will be conducted over the building by Sir Gilbert Scott, R.A., ex-president R.I.B.A. If time permits Sir Gilbert Scott will accompany the party to the Architectural Museum in Tufton-street.

3 *p.m.*—Meeting—Subjects, "General Building Regulations for the United Kingdom." Papers to be read by J. Honeyman, Fellow, Glasgow, and J. Clarke, Associate, Liverpool; and on "The Registration and Classification of Houses," by Henry Parsons, Fellow, London, and J. Sellars, Glasgow. Chair to be taken by John Whichcord, Fellow and V.P., F.S.A.

8 *p.m.*—Paper to be read before the Society for the Encouragement of Fine Arts, at the Rooms of the Institute, on "Egyptian Architecture," illustrated by drawings and sketches; by R. Phené Spiers, Associate.

Friday, June 16th, 1 *p.m.*—Adjourned Meeting for discussion of any of the above subjects (if necessary).

6.30 *p.m.*—The Institute Dinner will take place at St. James's Hall, Regent-street. Charles Barry, F.S.A., president, in the chair.

LIABILITY OF ENGINEERS.

A VERY important and novel question, as affecting the position and liability of engineers, has been under the consideration of the Skelmersdale Local Board.

Messrs. Goodison, Atkinson, & Forde are the engineers to the Board, with an agreement to be paid the usual 5 per cent. commission on all engineering works, and they have during the last two years prepared schemes of water supply, sewerage, and gas, in addition to the plans, &c., of public offices; the total estimated cost of these works being about 40,000*l.* In connexion with the water supply, the Board, some time ago, thought proper (against the advice of the engineers, as they had previously bored and found water) to sink a trial well. They accordingly advertised for tenders, and accepted one from a person named Taylor, who was a local man, and much below the others. The engineers told the Board at the time he never could carry out the work to completion for the amount of his tender. However, he commenced work, and went on fairly for a time, until he got hampered for want of funds. Then roguery began. On two or three occasions, when one of the engineers was measuring the depth of the well, for the purpose of granting him a certificate, he managed to move the mark on the cord while Mr. Atkinson was taking notes in his book. By this means he got at the time of his stoppage 60*l.* too much. Notice was served upon him to proceed, and as he has not done so (having since decamped), the Board have taken possession of what little plant he left on the ground. The Law Clerk has advised the Board that inasmuch as they paid the money on the engineers' certificates, they cannot proceed against the sureties for the amount in question, and the Board have passed a resolution calling upon the engineers to refund the money. They attended the last meeting of the Board to protest against this course being adopted, but the Board persisted. This is a very serious matter for engineers, and should be carefully considered.

The engineers offered to refer the question, and, when the Board declined this, offered to bear the expense of counsel's opinion as to whether the sureties could not be made to pay the amount in question. This was declined also.

As a question of law simply, we should doubt the ability of the Board to compel the engineers to pay the money in question.

THE NEW EXCHANGE, DRESDEN.

THE new exchange building in Dresden, the subject of our illustration, is the result of a competition which the authorities of the Exchange invited in April, 1872. The joint design of the architects Albin Zumpe and Guido Ehrig, at that time residing in Chemnitz, received the first premium, and was selected by the jury. The building was to serve only for the business of the Exchange, but this intention has in so far experienced a change, as allowance has also been made for utilising its rooms for social purposes.

The new building is in the style of the Renaissance, executed in sandstone, and abundantly provided with ornament and sculpture. Its back is turned to the Waisenhausstrasse, its principal façade to the Promenade, the future Ringstrasse. The interior is kept in the same style as the exterior, and adequately decorated. It contains in the lower story reading-rooms and the rooms of the authorities, offices, cloak-rooms, &c.; in the principal story, the exchange-room, the brokers' room, the telegraph-room, cloak-room, &c.; and in the entresol, towards the Waisenhausstrasse, the secretary's office, archives, and the porter's rooms.

Building operations were commenced in the spring of 1873, and conducted conjointly at first by the above-mentioned architects. Herr Ehrig, however, died in the autumn of 1873, and the sole direction of the works was left to Herr Albin Zumpe. It is the generally expressed opinion that the building is well fitted for the purpose for which it was designed, that it reflects great credit upon the authorities of the Exchange and the architects, and that it forms a conspicuous ornament of the city of Dresden.

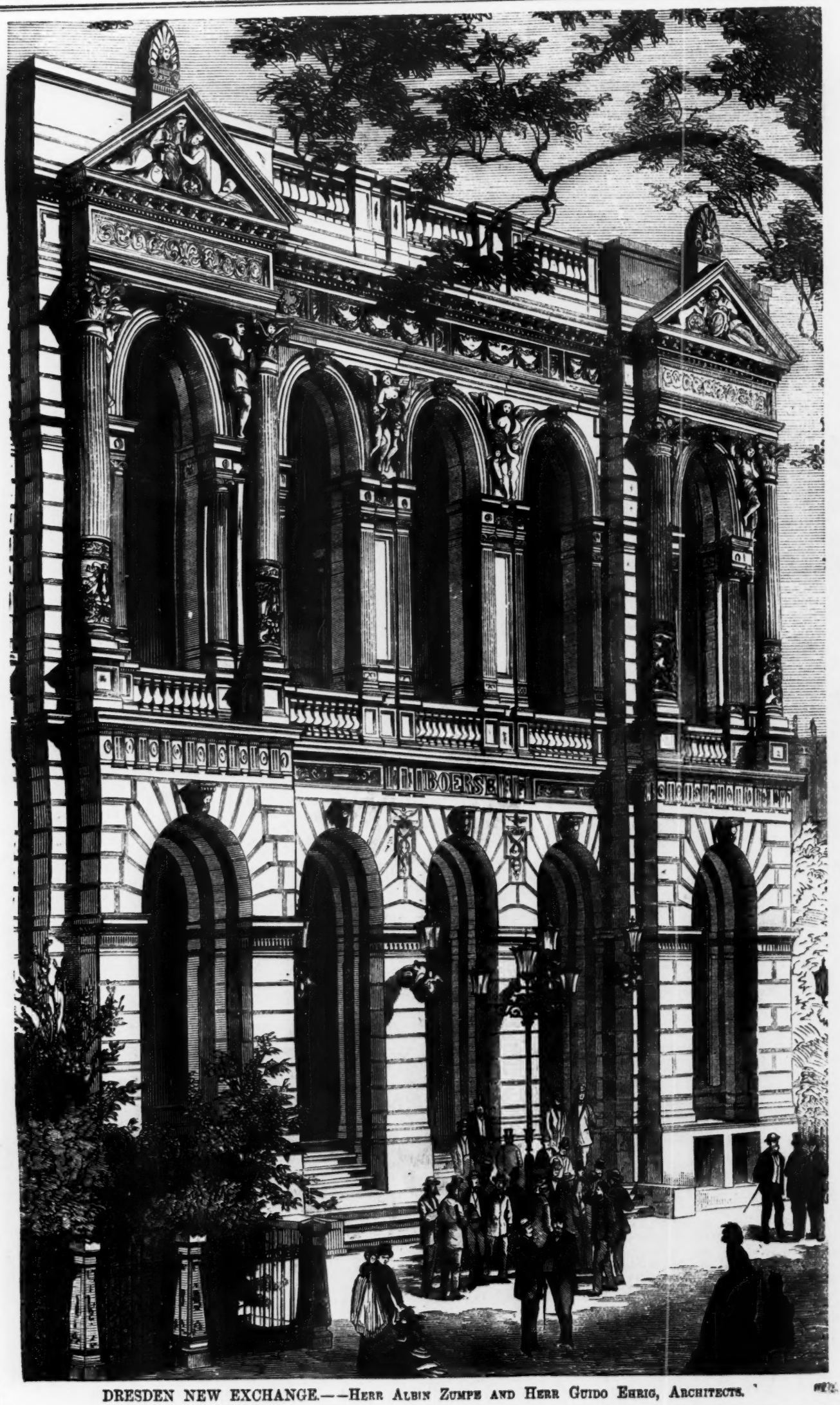
THE CITY LIBERAL CLUB, WALBROOK.

ON Monday last Lord Granville laid the memorial-stone of the new City Liberal Club now in course of erection on the east side of Walbrook, close to St. Stephen's Church. The architect is Mr. Grayson, and the design was selected in competition. In our volume for last year, particulars of the design, the accommodation it affords, and so forth will be found,* and we now give a view showing the aspect the front will present when completed. As may be seen the style adopted is, on the whole, Classical. The building will be three stories high, irrespective of rooms in the roof, and will have a frontage of 58 ft., extending to a depth of 115 ft. On the ground-floor there will be reading, writing, visitors', and billiard rooms; the next, or first story being occupied by spacious dining-rooms. A large private dining-hall and smoking-rooms are to be provided upon the second story. These several apartments will be reached by one main staircase, passing through the centre of the building.

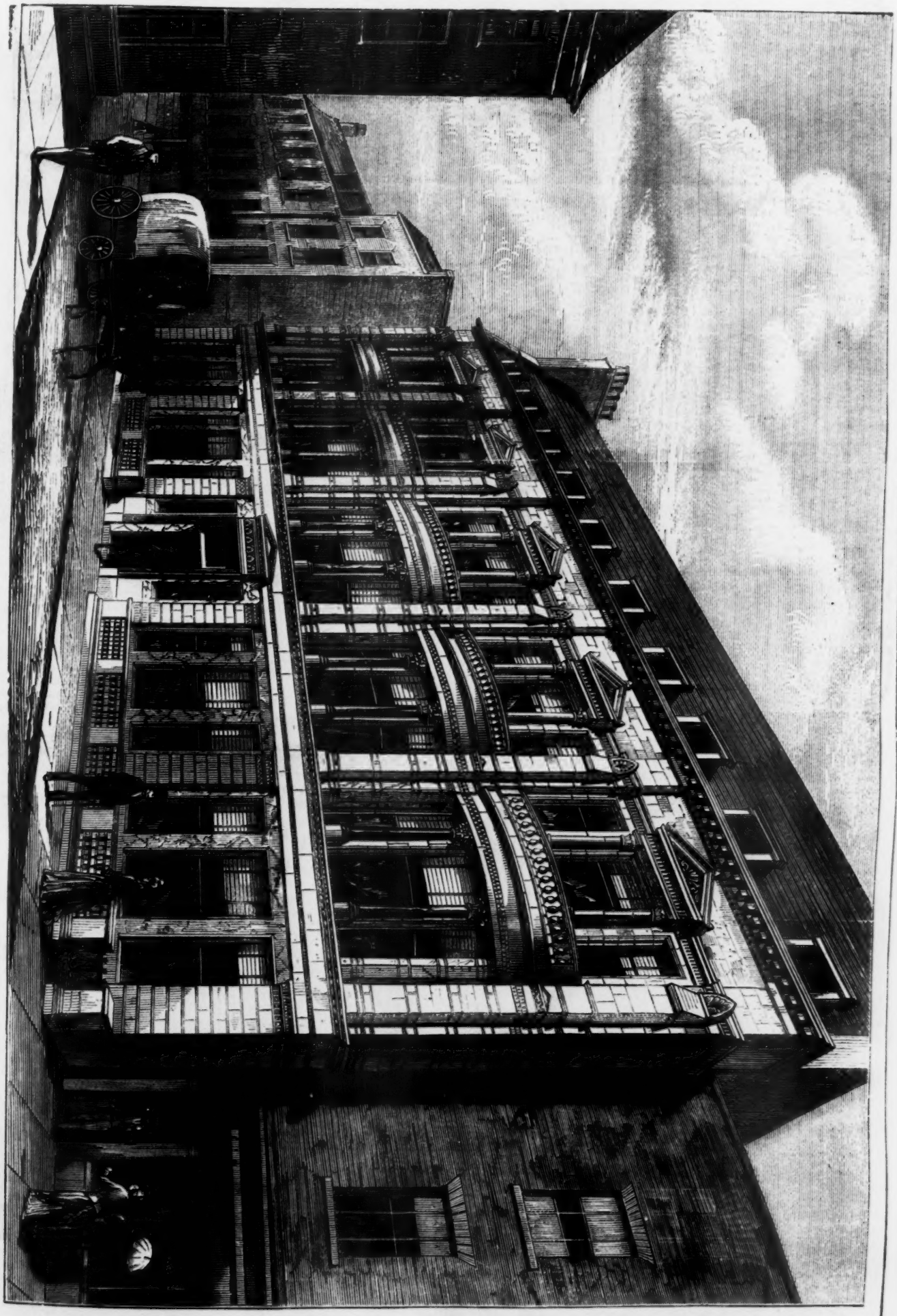
Messrs. Trollope & Sons are the builders, and the amount of their contract is about 32,000*l.*

An Oddfellow's Suggestion.—Writing to a Coventry paper on the subject of dwellings for artisans, "An Oddfellow" says:—"Our various lodges of Oddfellows, Foresters, burial societies, &c., have money at their disposal which they lend to corporations and other bodies at something like four per cent. Could not some of this be employed in the building of working-men's dwellings? Could it not by that means be made to pay *more* than four per cent.? As the majority of the members of these various bodies are working men, I would ask them to consider the question."

* Vol. xxxiii., p. 133.



DRESDEN NEW EXCHANGE.—HERR ALBIN ZUMPE AND HERR GUIDO EHRIG, ARCHITECTS.



THE CITY LIBERAL CLUB, WALBROOK.—MR. GRAYSON, ARCHITECT.

THE FACTORY AND WORKSHOPS ACTS.

THE report of the Royal Commission appointed in March last year to inquire into the working of the Factory and Workshops Acts, with a view to their consolidation and amendment, which has recently been presented to Parliament, is a very interesting and exhaustive document. Its great length, for it extends over 104 pages of a large Blue Book, precludes the possibility of a close examination of the opinions of the commissioners upon the various subjects which have been separately considered by them, but the general scope of their views may (says the *Morning Post*) be gathered from the summary of their recommendations with which the report concludes. Before proceeding to notice the principal of these recommendations, it may be observed that they are not concurred in by every member of the Commission, Mr. Knowles having expressed his dissent from all of them in which it is proposed to interfere with the provisions of the Mines Regulations Acts of 1872; and The O'Connor Don being unable to agree to so many of great importance, that he has written a separate report particularising the points on which he differs from his colleagues and his reasons for so doing. One of the special objects of the appointment of this Commission was to ascertain whether some means could not be devised to make the Factory and Workshops Acts more consistent and harmonious; and it certainly is most desirable that something should be done in that direction, there being already in force no less than fifteen statutes relating to the regulation of the employment of women, young persons, and children in what is technically known as a "factory" or "workshop." Besides these Acts there are others so closely allied to them that they may be placed in the same category, as, for instance, the Bakehouses Regulation Act, the Chimney Sweepers Act, those for regulating mines, and the Agricultural Children Act; so that it is no wonder that some confusion or discord in the working of all these measures has been experienced. With a view to the simplification of the law, it is here recommended that the Factory Acts from 1833 to 1874, the Ropeworks Act, 1846, and the Workshops Act, 1867 to 1871, should be consolidated into one single Act. There are in these various statutes numerous anomalies, and they have consequently been found to press unequally upon different employers and industries. The majority of such inequalities has no doubt been due to the passing of the Workshops Regulation Act, which established a distinction between factories and workshops that has received universal condemnation. A workshop, according to this law, is a place wherein less than fifty hands are engaged, and the statutory regulations as to employment in such establishments are much fewer and less binding than under the Factory Acts; so much so that many of the smaller manufacturers will sometimes purposely keep the number of their workpeople down to forty-eight or forty-nine, in order to free themselves from the restriction of the latter. Thus the larger factory occupiers were aggrieved by what they felt to be an invidious Act of Parliament, which, according to the evidence of the authorities, charged with the duty of seeing it obeyed, is difficult of enforcement, and often, it is believed, wholly inoperative. The abolition of this distinction by the repeal of the Workshops Regulation Act of 1867 is proposed by the Commissioners, on the general ground that there is no adequate reason for its existence; and if their recommendation is carried out, workshops and factories will henceforth be classed together, and the limitation in the definition of a workshop to places where the handicraft is carried on "by any child, young person, or woman," will for the future be extended to all factories.

The extension of the Factory Acts to some industries and occupations to which they have not hitherto applied is of course intimately connected with the proposal for a consolidated Act under which some of these would be brought. It is recommended that bakehouses, as defined by the Bakehouses Regulation Act of 1863, should be included under the new law, which might, it is suggested, be called the "Factory and Workshops Acts," "the word 'factory' being so defined as to include the factories now under the Factory Act of 1874, that is, premises in which any mechanical power is used in textile manufacture, and the word 'workshop' used to cover all other places of work within the Act," whether they be in the open air or not, excepting fields where agricultural labour is carried on. It may appear unnecessary to allude to such an exception, but the point was raised before the Commissioners, and decided by them as above. Amongst other industries to which it is proposed to apply the Consolidated Act are working in quarries and on pit banks, where these do not form one trade establishment with a mine, and also ropemaking. With regard to the regulation of times of labour, the Commissioners have made several recommendations, of which some are general and others particular, it being justly considered that no set of rules could be framed which would be applicable to all trades alike. The limits of the hours of work are, of course, the same for all factories and workshops, but, under certain circumstances, there might be a relaxation as to the times at which the day's work should commence and terminate. Other abatements of the stringency of the law with respect to times of labour are proposed, so as to meet the exigencies of all trades liable to emergency from sudden press of orders, or such as are "subject to interruption in the process by stress of weather," or in cases where loss would result from a process being left in an incomplete state, and in many other instances. In all their recommendations on this subject the Commission appear to have been actuated by the desire to leave to employers the utmost liberty of action, and only to interfere in order to meet proved abuses and to rectify particular evils. On the question of education, the report lays down the broad rule of direct compulsory attendance at school for all children, whether they are at work or not, and recommends that half-time should be considered a relaxation, allowed as a privilege, and not imposed as a burden.

The recommendations under the head of sanitary measures are primarily directed at ensuring that no child or young person under sixteen should be employed before the legal age, and for this purpose a certificate of birth should, it is proposed, be required in all cases of first employment under the new Act. If such a certificate cannot be furnished, the inspecting surgeon should estimate the child's age, and in either case he should state that the child is fit to be employed.

MASTERS AND MEN.

HARRISON *v.* PARAMOR.

THIS was a claim at Margate County-court (before Mr. George Russell, Judge) for 2s. 1d. for wages.

The plaintiff said: The defendants advertised for carpenters and joiners, at 7½d. per hour, and I answered their advertisement. They wrote to me, telling me to come down. When I was paid on the Saturday, I received at the rate of 7d. per hour. When I inquired why they did not pay me the 7½d. per hour, the defendant said he had only promised that amount to men.

The Judge: How do you make the 2s. 1d.?—52 hours, at ½d.

How long were you at work?—A week.

What was the bargain he made with you?—7½d. an hour.

And he only paid you 7d.?—Yes.

And what you charge is the additional ½d. per hour?—Yes.

The plaintiff handed in the advertisement, which appeared in the *Builder*.

The Judge: Do you consider yourself a good carpenter and joiner?—Yes. I told him what I was getting in London; 9d. an hour, the full wages.

Are you the full age?—Yes; I am 21.

Mr. R. Paramor: He did not tell me what he was receiving in London till I paid him. My shop foreman told me he had not earned more than 7d. an hour, during the week. My arrangement was to give 7½d. an hour for "good men," and he is not a good man.

The plaintiff: You did not write and say if I was not worth the money you would not give it me.

The Judge (to the defendant): Did you dismiss him?—No; he left on his own accord; but he called on the Monday and told me if I did not pay the amount now claimed, he would summon me.

Edward Padgett, the foreman, said: I generally rate the wages of the men; and I rated plaintiff's at 7d. That is the average amount paid in Margate; but we advertised for men at 7½d. because we had a better class of work in, and wanted a better class of men, and I reckon he is not a good man.

The Judge: When did you tell him you rated him at 7d.—On the Saturday.

Did you make any complaint to him during the week?—Yes, twice. I told him his work was not good, but did not say anything as to the rate of wages.

His Honour said he was of opinion that the defendant gave an answer to an advertisement, and that he, therefore, supposing himself to be a good carpenter and joiner, was entitled to those wages, as represented, and on the promise of which he came, and not at any deduction whatever. He thought there was nothing to justify a reduction, and judgment must, therefore, be for the plaintiff, for the full amount.

Maidstone.—During the past fortnight the masons engaged in the erection of the new church of St. Michael and All Angels struck work, in consequence of the contractor, Mr. Naylar, having obtained stone for the building from Bath, ready prepared for use. It is stated that the men have resumed work on the condition that no more worked stone should be obtained from the quarry, and that the bricklayers should not fix the stonework.

Bradford.—The strike of masons' labourers at Bradford is at an end, the arbiter having awarded them an advance of 2s. a week, making their wages 25s. in the town and 26s. in the suburbs.

Greenock.—At a conference of masters and men held on the 22nd ult., the men agreed to accept the masters' terms—viz., 9d. per hour. The men demanded 10d. per hour. There are still some questions regarding working regulations, and if these are satisfactorily arranged, the strike will be at an end, and the proposition to import German workmen will not be acted upon.

Glasgow.—On the 23rd ult. a large meeting of the joiners of Glasgow and district was held in the Albion Hall to receive answers from the employers regarding the demand of an advance of wages from 8½d. to 9d. per hour. It was stated that only 30 per cent. of the employers were agreeable to grant the request. A motion that the men come out on strike on Friday, the 26th ult., unless the masters reconsidered their decision, was carried by a large majority, only twenty-six being in favour of the previous question.

Oxford.—Many of the carpenters on strike have now left Oxford. Some of the foreign firms who have contracts in Oxford have conceded the advance to a few of the men, and it is to be hoped that the present state of things will soon come to an end.

Newcastle-on-Tyne.—At a meeting of the painters of Newcastle-on-Tyne it has been resolved to continue the struggle, and that the levies on the men working at the advanced rate of wages be reduced from 4s. 2d. to 2s. 6d. per week.

Middlesbrough.—The strike of painters at Middlesbrough has now terminated. The employers have offered the men ½d. per hour advance, making 7½d. per hour, while the men requested 8d. per hour originally. They have, however, agreed to accept the compromise, and end a dispute that was harassing house-owners and others to a great extent.

Manchester.—A deputation from the Master Lath-cleavers' Association has communicated to the secretary of the Manchester and Salford Trades Council a remonstrance against the action of the workmen in that trade. The men have been on strike for more than two months, the demand being for an advance from 4s. 4d. to 5s. per thousand, at fourteen days' notice. The masters resisted this, on the ground that other branches in the building trade always gave six months' notice, and also that the present rate of wages was quite high enough, viz., from 35s. to 45s. per week, the time being from 6.30 a.m. to 6.30 p.m., deducting meal-times. Upon this subject the masters add,—"What the men seem to want is to commence work about Wednesday, and receive 2*l.* for it, which they would dissipate away." The masters also state that the price in Liverpool is 4s. for the same counts, while Manchester gets as good timber as any other town to work up. Seven loads of foreign laths had recently arrived from Norway, where both labour and timber are cheap, and they were sold in Southport at 10s. per 1,000. The remonstrance concludes as follows:—"If the men walk about until Christmas, no advance can be conceded, for it would be better for the masters to get supplied from the Yorkshire district, where the wages are only two-thirds of the rate paid in Manchester."

Altrincham.—The bricklayers of Altrincham have had the advance demanded (one penny per hour) acceded to by the masters; but the labourers, to the number of about fifty, are still on strike, refusing to accept the Manchester rate.

Northampton.—In March, 1875, there was formed in Northampton a local branch of the National Association of Operative Plasterers, and influences were put forth to enrol every member of the craft. In the employ of Mr. Banks, master plasterer, of Abington-street, are two men who (having worked for him periods of fifteen and thirty-four years respectively, and having presumably done very well without the aid of any society during that period) could see no necessity for connecting themselves with the Branch. The two men in question were incessantly remonstrated with for not becoming members of the society. All efforts proved ineffectual, however, and on the 15th ult. the society men in Mr. Banks's employ went to him, according to the *Northampton Herald*, and demanded the discharge of the non-society men,

unless they expressed themselves willing to join the society. Mr. Banks very properly referred them to the men themselves, saying that, after they had given their reply, he would tell them (the applicants) his decision. The two men were then once more requested to join the society, but, declining to do so, the representatives of the society repaired to Mr. Banks and again demanded their discharge. Mr. Banks, however, refused to yield to such dictation, whatever the consequences. The men thereupon struck, but subsequently two of them found out that they had made a mistake in leaving without proper notice, and returned to work. Legal proceedings against one of the others, with the object of showing them their error, were commenced by Mr. Banks, and the case came before the borough magistrates on the 19th ult., when the defendant did not put in an appearance.

Hull.—After being on strike six weeks, the Hull painters have resumed work, having received an advance of ½d. an hour (they asked 1d.), and a reduction of hours from fifty-five and a half to fifty-three.

Lincoln.—The award of the arbitrator, Mr. Brogden, on behalf of the joiners, was received on the 13th ult., although it was specially requested, and also promised, that it should not appear until the 15th. Mr. Brogden has seen fit to give an advance of wages to the amount of 1d. per hour, or 4s. 6d. per week,—an advance equal to 15 per cent. on the present rate of wages. After the above decision, the master builders held another general meeting, and took into consideration the claims of the bricklayers, when it was unanimously resolved to accede to their demands. A committee was formed, and met the delegates on the 17th ult., when the decision was made known to the men, who from Monday, the 22nd ult., have received an advance of 4s. per week, and half an hour less work.

Southport.—The master joiners of Southport, in consequence of the men refusing to accept 8½d. per hour, are making arrangements with a contractor in Germany for about 100 men who will accept work at 7d. per hour. A few days ago seventeen joiners were sent over from Ireland. On their arrival at Southport Station the men were surrounded by those on strike, but the masters succeeded in getting them into a cart, and drove them to the works of Mr. T. Durfield, where they safely arrived, amidst the yellings, hootings, and jeers of the Southport joiners. Subsequently, one of the joiners on strike was fined 5*l.* and costs (or one month's imprisonment) for intimidating one of the Irish workmen.

Chester.—The bricksetters of Chester lately asked their employers for an increase of pay per hour, from 7½d. to 8½d., and for an hour less every day; while the bricklayers' labourers asked for the same curtailment of time, and a rise of from 5½d. to 6d. per hour. The bricklayers were offered 8d. per hour, and the shorter time asked for; but this they refused to accept, and turned out on strike. Before, however, the first day's strike was over, the masters agreed to their terms, and the men resumed work. Their hours will now be 49 in the week, instead of 54 as heretofore.

FREEDOM OF TRADE.

WITH reference to the strike against the Greenock masters, now, we believe, at an end, some curious circumstances have been made public by Scottish newspapers regarding the position taken by the workmen towards their employers. A system of "fines," or black mail, has for a long period been exacted by the men from the masters for what the former may consider breach of rules, &c. For example, an employer some time ago took a contract to build a property, in the specification given out for which was omitted the "pointing" of the building, the proprietor of the property wishing to retain this detail in his own hands. The job was finished, and about a year thereafter the proprietor employed a plasterer to "point" the walls. The operative masons thereupon called upon the master mason who took the original contract, and fined him several pounds sterling for taking a job under such circumstances; and the latter, being at the time under contract to proceed with important alterations in a public work during the Fair holidays, had to pay the money or have his workmen brought out on strike. Another case was that of a builder employed in the erection of a public institution in Gourock, who had two machine-prepared stone steps sent him from Glasgow, as specimens of what could be supplied him for the institution, and he having, unfortunately, used them, he was heavily fined, on the ground that the stones were machine-hewn. Another master, employed on a large contract in West Burn-street, Greenock, ordered two similar steps to be sent him, when he was fined 30*l.*, which was afterwards mitigated to 10*l.*, and the latter sum he had to pay. An employer engaged on a large contract in the neighbourhood of Greenock has, we believe, been repeatedly fined,—on one occasion to the extent of 100*l.*,—for doing something in connexion with his business which the workmen disapproved of. As to the question of apprentices, the number allowed each Greenock employer is stated to be four, no matter whether the master employs hundreds of journeymen or only two.

HAMBURG TOWN HALL COMPETITION.

THE Secretary of the Institute of Architects has announced that the Council have received notice of an important competition for a new Town Hall at Hamburg. The site of the proposed building is stated to be 338 ft. by 221 ft., open on all sides, and the total cost is fixed at 300,000*l.* Eight premiums of 250*l.* each are promised, with an extra premium of 250*l.* for the best of the eight. A pamphlet giving full particulars (in German) has been presented by Mr. A. Strong, Fellow, and is laid on the library table.

UTILISING THE TIDE.

SIR,—Mr. J. F. Wilkinson's scheme for utilising the tide, as described in your issue of the 27th ult., is no doubt very ingenious. But he treats my plan with some degree of scorn, because it modestly professes to utilise only one-eighth of the tide's force for any given area; and he seems to assume, because his reservoir possesses the full depth of the tide, and because the whole bulk of water, as it passes in and out, comes into contact with the paddles of a wheel which, by being floated, maintains the "same grip of water," that he consequently utilises the whole force of the tide for a given area. It is almost needless to say that if he so thinks, he is greatly in error. As I endeavoured to show, in the article which you so kindly published on the 13th inst., if we wish to express the full power of the tide for any area, we must suppose the whole bulk of water that is raised over that area to fall in the same time through half the tide's height. Now though we may allow (what, however, is not the case) that according to Mr. Wilkinson's scheme, the whole body of water acts upon the paddles, it certainly does not in so doing fall through half the tide's height. On the contrary, inasmuch as the wheel is made to float, and thus ascend and descend with the tide, the fall of water against it, as represented by the difference between the levels inside and outside the reservoir, cannot be expected to amount on the average to many inches, even in a tide of 20 ft. At the turn of the current, the difference between the levels will be *nil*, and the wheel, if connected with the works, will remain motionless for some time, both before and after the turn of the tide, and both at high water and low water. This is an awkward circumstance, especially as even to reach the modest eighth of the tidal force, which Mr. Wilkinson so contemns, he will have to insure for a tide 20 ft. in height an average difference between the levels on one and the other side of his paddles of at least 15 in. But I think, considering the delicacy of the machinery which he proposes to use, we may congratulate him upon having provided flood-gates which can be closed during repairs.

D. B.

SIR,—I hope my model to which you refer will not be compared to either of the schemes of your correspondents, "D. B." or "J. F. W."; for if the latter were to make his water-wheels as large as is possible, they would not bear the least comparison with mine, which has neither revolving-shafts nor working-barrels. My machine is nothing more than what is called the beautiful fountain of Nero, the Roman emperor, who, if I am informed rightly, instead of placing the supply-tank above the fountain, placed it in the ground below. The plan has been tried in some parts of Holland, but failed because not self-acting—an object that I have perfectly accomplished. It can be made to work on a small scale, like my model, or large, for draining tide-locked sewers, or even the Zuyder Zee. Roughly describing it: if you place say two pints of water on the table, and let one fall on the floor, the other will rise an equal height above the table.

B. CARR.

THE INSTITUTION OF SURVEYORS.

ON Monday last the eighth annual meeting of the members of this Institution was held at the offices in Great George-street, Westminster, under the presidency of Mr. Thomas Huskinson. The report adopted by the meeting, on the motion of the chairman, stated that the past year had been one of prosperity and steady progress. The number of new members elected had been greater than in any previous year. Since the date of the last report twenty-nine members, twenty-three associates, and two students had joined, and on the books of the Institution there were now six honorary and 294 ordinary members, 119 associates, and eight students, or 427 of all classes. The Council regretted to have to announce the deaths of the following members during the past year:—Mr. W. Murton (of Tunstall), Mr. J. Pyne (of Wimborne), Mr. G. J. Taylor (of London), and Mr. J. Clark. The balance-sheet showed a result of a very satisfactory character,—the revenue derived from all sources exhibiting a marked increase, whilst the ordinary expenditure had only slightly exceeded that of the previous year. The Council had applied, out of available balances, 500*l.* to the extinguishing of a corresponding portion of the capital debt of the Institution. The report further stated that several evenings of the session had been very profitably occupied in discussing the Agricultural Holdings Act. That measure was felt to be one in which the members of the Institution were specially concerned; and, looking to the magnitude of the interests affected, and to the previous uncertainty as to the practical effect of many of the provisions of the Act, it was thought desirable to devote an unusual number of evenings to its discussion. The exhaustive consideration which the measure received at the hands of the members had served a most useful public purpose, whilst the interest which the discussion had excited in influential quarters had brought a perceptible increase of reputation to the Institution. The new Valuation Bill had been discussed on several occasions; and it was hoped that the attention thus called to the measure might lead to its amendment when it came again under the notice of Parliament. The new volume of Transactions contained papers of great interest. The Council acknowledged their obligations to Mr. W. D. Gardiner, who contributed a valuable paper on "Ancient Lights," which formed a perfect compendium of the law on the subject. A notable addition to the collection of topographical works in the possession of the Institution had recently been made by the presentation of a fine copy of Dugdale's "Monasticon," for which the Institution was indebted to Mr. Alderman Ellis. Upon the appointment of scrutineers, the election of officers was proceeded with, and the following result of the ballot was declared:—President, Mr. Edmund James Smith; vice-presidents, Messrs. John Oakley, William Sturge, Edward Ryde, and Thomas Smith Woolley; council, Messrs. J. Matthews, W. J. Beadel, R. C. Driver, F. C. Vigers, V. Buckland, C. J. Shoppee, T. C. Chatfield, E. P. Squarey, C. Stephenson, D. Watney, W. Scarth, and E. I'Anson; and Associates, Messrs. J. H. Lloyd and R. B. Grantham. A vote of thanks to the chairman concluded the proceedings.

PROPOSED IMPROVEMENTS, HANLEY.

LAST week Major Tulloch held an inquiry at the Town-hall, Hanley, on behalf of the Local Government Board, in consequence of the Town Council praying for a provisional order empowering them to purchase compulsorily certain properties required for street improvements and sewerage purposes, and also for permission to borrow 37,000*l.* for sewerage works, and 6,000*l.* for street improvements. The first question considered was the continuation of Percy-street by the widening of Tontine-passage, where the council proposed to acquire 679 square yards of land. There was no opposition, and Major Tulloch spoke favourably of the proposed improvement. The next improvement was the widening of the upper end of Stafford-street. The quantity of land required was 616 yards. In Lower Charles-street 167 square yards were required, and the mayor remarked that all these improvements would be a great benefit to the public. With regard to the sewerage works, the surveyor, Mr. Lobley, explained that it was proposed to erect sewage works in meadows between Leek New-road and the Trent, the site covering nine acres. It was intended to deal with the

whole of the sewage there, where there would be tanks, but probably some attempt would be made at intermittent irrigation. The surveyor said the council would prefer the loans to be extended over fifty years. This had reference to the street improvement only. The rateable value of the borough was 103,115*l.*, and the debt 64,000*l.* The Inspector was afraid the Board would not consent to the money being borrowed for fifty years. If the council did so they would have to pay in all probability 4 per cent.; but if for thirty years the rate would be 3½ per cent. He doubted whether the Public Works Loan Commissioners would lend money for street improvements at 4 per cent.

CITY PAVEMENTS.

SOME two years ago permission was granted by the City authorities to the patentees of various systems to pave so much of Cannon-street as would enable the former to arrive at a definite conclusion as to their respective merits. Accordingly, in May, 1874, a piece of wood pavement, constructed on "Norton's Patent Wood Slab Pavement" system, was laid down. The slabs are 7 ft. 6 in. by 3 ft., composed of wooden blocks, which are cemented together by an original watertight substance. When laid down the proprietors asserted that this substance would prove to be wholly impervious to wet, thus obviating the chief objection to other wood pavements, viz., that the surface water percolates through the interstices of the blocks, and by so doing not only rots the wood, but creates a sanitary nuisance which at times might become exceedingly dangerous. A few days ago a slab of the pavement laid down in Cannon-street was lifted, in the presence of a number of gentlemen interested in the question, and an engineer informs us that when taken up the pavement exhibited a wear of less than ¼ in. only, and that when the blocks were split up to ascertain the truth of the assertion that the water would not percolate through the interstices of wood, the timber was perfectly dry, while the earth grit on which it was laid was also found to be in exactly the same condition as on the day it was first put down.

ART TREASURES EXHIBITION OF NORTH WALES AND THE BORDER COUNTIES.

GREAT preparations are being made for the Art Treasures and Industrial Exhibition of Wales to be held at the populous town of Wrexham from July to October.

The executive committee, of which Mr. W. Cornwallis West (the Lord Lieutenant of Denbighshire) and Mr. W. Chaffers are active members, have obtained loans from nearly every large collection in the counties of North Wales, Cheshire, Lancashire, and Shropshire.

The exhibition buildings will consist of two large houses recently erected in Hope-street, Wrexham. The approach will be by an arched gateway and long corridor filled with statuary, flowers, and shrubs, on one side of which will be the refreshment-rooms, extending 100 ft. in length; this leads into a central hall and an art gallery, 150 ft. by 70 ft., fireproof, being, in fact, a saloon of zinc plates, with wooden supports and rafters, lighted from the roofs. The Industrial annexes are distinct.

The plans have been submitted by Mr. Kennedy, the architect, to the executive committee, and approved.

CORNISH CONGRESS OF THE BRITISH ARCHÆOLOGICAL ASSOCIATION.

THE thirty-third annual congress of this society will be held at Bodmin, on Monday, the 14th of August next, and will virtually terminate at Penzance on Tuesday, the 22nd inclusive. On this, the first occasion of a London learned society investigating the many interesting and remarkable features of Cornwall archæology, we are pleased to find His Royal Highness the Duke of Cornwall (by birth), Prince of Wales (by creation), has consented to become the patron of the meeting.

As the Association has for its president this year so well-known and popular a nobleman in the county as the Earl of Mount Edgcumbe, there is every reason to hope that the coming Congress will be one of the most successful the society has had, and as the noble president has invited the members and their friends to commence the proceedings at Cotehele, an interesting specimen of an Early Tudor residence, and belonging to the Edgcumbes from the time of the Wars of the Roses, the opening day with a trip by steamer up the beautiful River Tamar, on which Cotehele is situated, some ten miles from Saltash, will, weather permitting, prove a most attractive and agreeable commencement of the ten days' work.

BRADFORD STREET ARCHITECTURE.

THE worsted trade is passing through one of those crises of difficulty which have occurred periodically during the last fifty years, and which, it is believed by well-informed people, has its origin in the undue inflation and expansion of the productive power of the district in 1871. But although the district is labouring under the infliction of bad trade, there seems to be every faith in the future of the worsted industry, judged by the money that is being expended in the erection of costly structures, not only in Bradford, but in places round about. There is the vast pile of buildings in Manchester-road, known as the Union Warehouses, for the storage of wool, erecting by Messrs. Taylor & Hargreaves; the warehouse for Messrs. C. Semon & Co., rising in Bolton-road, and designed by Messrs. Milnes & France, the latter firm of architects having just completed a large block of warehouses, six stories in height, fronting to Canal-road, New Commercial-street, and New Kirkgate, and they are also engaged in the preliminary operations for placing on the White Swan Estate, in Market-street, Charles-street, and Brook-street, a range of buildings, for Mr. Angus Holden, of a costly character. The Society of Friends are having built in Brunswick-place a new Meeting-house; and the Corporation are erecting in Godwin-street and Darley-street the second half of the covered market, together with premises for the purpose of the Central Free Library. The latter structure is from the designs of Messrs. Lockwood & Mawson, and this firm have also in hand the block of buildings fronting New Bank-street, Kirkgate, Queensgate, and Hustlergate, comprising the premises of the Liberal Club, a large shop for Messrs. M. Rhodes & Sons, and other shops and offices, erecting in one complete design,—a feature not often found in Bradford. This pile promises to be as creditable to the architects as to the enterprise of the owners. The shopkeepers are launching out into heavy expense in the adornment of the town.

THE METROPOLITAN CONSOLIDATED RATE FOR 1876.

THE apportionments of the amounts of the consolidated rate required for the year 1876 by the Metropolitan Board of Works, upon the forty-eight parishes and districts within the Board's area, have been issued. The total amount required for the year is 444,980*l.*, being an average rate for the year over the whole of the metropolis of 4·61 in the pound, which is below the average of previous years, the present year being considered exceptional in consequence of the increased assessments over the whole of the metropolis. Although the mover of approval of the apportionments (Mr. Lloyd) was of opinion that they would not be able to calculate upon the same low rate next year, Mr. Richardson, who seconded the motion, thought otherwise, observing that he was certainly in hopes that next year the rate would be no higher than it was now, and he assigned as a reason a hope that, next year, they would be able to include as assets the value of the property that would then have come into letting. The Board had paid thousands of pounds for land which was in their possession; but until it was plotted out they could not include it in their assets. The aggregate rateable annual value of the property in the several parishes and districts is 23,281,071*l.*, the largest amount, 2,968,086*l.*, being set down to the city of London, from which 56,260*l.* 2*s.* is required during the year. The parish of St. George, Hanover-square, stands next in order, the rateable value being 1,499,954*l.*

The Royal Scottish Academy's Exhibition.—The number of works of art sold in the exhibition was 234, realising 8,468*l.* 12*s.* Last year 260 paintings were disposed of for 9,011*l.*, while in 1874 the works sold brought 8,240*l.*, and in 1873 the amount was 6,675*l.* 5*s.*

BUILDING ON DUST REFUSE.

AT the meeting of the Metropolitan Board of Works on the 19th ult., the following report of the Works and General Purposes Committee was read:—

"In compliance with the resolution of the Board of the 5th instant, your committee have considered the letter from the Home Office, transmitting a copy of a letter from the Local Government Board with reference to the steps that should be taken to prevent the building of houses on foundations of dust and house refuse, and requesting this Board to give effect to the suggestion of the Local Government Board as to legislation on the subject whenever a Bill to amend either the Metropolis Local Management Acts or the Metropolis Building Act shall be brought before Parliament. This question, as the Board are aware, is one which has already on several occasions engaged their serious attention, more especially in connexion with the endeavours they have made to obtain an amendment of the existing legislation with reference to buildings in the metropolis, and it appears to your committee that, as regards the present communication, the proper course will be to furnish the Secretary of State with full information as to the repeated applications which the Board have made to Parliament for that purpose, and also as to other steps which they have taken with a view to preventing the evils referred to. Your committee have prepared a draft letter conveying this information, and expressing a hope that, with the assistance of Her Majesty's Government, some speedy and satisfactory amendment of the law may be obtained, and that they beg to submit the same with this report, and to recommend that it be approved and communicated to the Home Secretary. Your committee are, moreover, of opinion that, having regard to the great importance of this question as affecting the sanitary condition of the metropolis, the Board should, in addition to forwarding the letter above suggested, also seek an interview with Her Majesty's Government, and point out to them the difficulties against which the Board have had to contend, and should ask their assistance with regard to an amendment of the existing law. With this view, your committee further recommend that the subject be referred back to them with authority to confer with the Government thereon."

Mr. Selway, in moving the adoption of the report, said he believed this subject had been brought before the Local Government Board by the Hackney District Board.

Mr. Richardson seconded the motion, which was put and carried.

[The Hackney District Board of Works has good reason to take this matter in hand, as was shown a few months ago in the pages of this journal.]

THE TRAFFIC AT HYDE PARK CORNER.

LORD H. LENNOX, replying to Lord E. Bruce in the House of Commons, said he was happy to be able to state that, after long and anxious consideration, he had decided to approve a route for the relief of the traffic at Hyde Park-corner, and for opening a communication between Piccadilly and Belgravia, by crossing Green Park from Hamilton-place into Grosvenor-place. The plan will be almost identical with that shown in the course of last year. The road would have a wide entrance at Piccadilly, and would enable the traffic from the east and north-east to pass into it, and down to Victoria Station, without coming into contact with the ordinary traffic down Hamilton-place. The road would, however, have to cross Constitution-hill on a level; but a gate-keeper would be stationed at the crossing, who would prevent members of the Royal family and members of Parliament coming along Constitution-hill from being delayed there. The Commissioners of Police were of opinion that great relief would be given to the traffic by the proposed plan.

THE CRAIGMADDIE CROMLECH.

YOUR current number gives an interesting account of the dolmen or cromlech of Dolwilym, in Carmarthenshire, but large as it is, that appears to be only about half the size of one which exists within a few miles of this city, Glasgow, and which is probably the greatest in the three kingdoms. I refer to that which is commonly called the "Auld Wives' Lift," at Craigmaddie, in the Kilpatrick Hills, near the railway station of Milngaire. The table-stone of this magnificent pile rests upon two huge blocks, so arranged as to leave a free passage for votaries to creep through under the copestone, which is 18 ft. in length, and 11 ft. in breadth. The depth is 7 ft. at one end, and falls off to 2 ft., or little more, at the other, but I calculate the cubic contents at forty tons weight. The dimensions you give of the Welsh table-stone are 11 ft. 6 in. by 8 ft. 10 in., the depth not stated. Tradition has preserved no record of the purpose for which this dolmen was erected, but there is little doubt that beneath it rest the bones of one of the Pagan kings of Nentria or Strathclyde; and it was probably an altar as well as a tomb.

J. H. TURNER.

SURVEYORSHIP ITEMS.

Wigton.—A special meeting of the Wigton Highway Board was held on the 23rd ult., for the purpose of electing a surveyor to the Board, in place of Mr. Hutton, resigned. At a recent meeting there were forty-three applications, and a sub-committee was appointed, who reduced this number to six. Their letters and testimonials were carefully gone through and read to the meeting by the chairman, after which the voting took place, with the following result:—Mr. Joseph Robinson, Aspatria, 18 votes; Mr. Tate, Bowness-on-Solway, 15 votes; and Mr. Younghusband, Prior Hall, 7 votes. The contest then lay between Mr. Robinson and Mr. Tate, when there were for Mr. Robinson, 25, and for Mr. Tate, 18; so that Mr. Robinson was declared elected by a majority of seven. He is to reside at Wigton, and devote the whole of his time to the duties of his office. The salary is 160*l.* a year, and the mileage is estimated now at about 340 miles.

DAMAGE THROUGH RAISING A STREET.

SIR E. BAKER *v.* THE VESTRY OF ST. MARYLEBONE.

In the Exchequer Division of the High Court of Justice, on the 24th ult., the case of Sir E. Baker *v.* The Vestry of St. Marylebone was heard:—

The action was brought to recover 250*l.* for damages done to the plaintiff's house, in Christ Church-buildings, Lisson-grove. The plaintiff is a tenant for life, and Mr. Smith said he admitted the street (Little James-street) was raised some 8 ft., pursuant to two local Acts of George III. This had blocked up the whole ground-floor and the doorway, and the latter had to be rebuilt and windows put in. Notice had been given to defendants under section 68 of the Lands Clauses Consolidation Act, but they had refused to summon a jury within twenty-one days. Apparently this case was governed by the case of "Ferrar *v.* The Commissioners of Sewers in London," which was reversed on appeal ("L. R.," 4 Ex., p. 227). But there was a distinction between this case and that. There it was held there could be no compensation unless the plaintiff had a ground of action, or the defendants had committed a trespass. The defendants under their local Acts, 35 and 57 George III., were enabled and justified in raising the road. There was no compensation or right of action given by those statutes. Section 68 of the Lands Clauses Act was not incorporated, and if it were what was done was no tort. Mr. Smith said he contended the case was governed by the Metropolitan Management Act (18 and 19 Vic., c. 120), which repealed, or rather superseded, the two local Acts. That Act gave powers to the Vestry to purchase easements or rights in and over land. The defendants must pay if they took an easement, as ancient lights or right of way. Under the Lands Clauses Act compensation was to be made for any land taken under an agreement. That Act, he submitted, was incorporated with the Metropolitan Management Act, except sections 16 to 68, which related to compulsory purchase. He maintained the plaintiff came within the earlier sections, 6-15, of the Lands Clauses Act. The power to raise and level roads did not mean that the Vestries should not pay for it. If that were so it would be most unjust. Barons Bramwell, Cleasby, and Huddleston gave judgment in favour of the defendants.

BREACH OF CONTRACT.

CLIFFORD *v.* CLARKE.

This action (heard in the Brompton County Court on the 10th ult, before Mr. Serjeant Wheeler) was brought to recover the sum of 15*l.* 10*s.* 8*d.*, for damages caused by breach of contract.

Mrs. Clifford said she resided with her husband, the plaintiff, at No. 1, Rutland-gardens, Kensington, and had employed the defendant to fit some hot-water apparatus to that and three adjoining houses. Had paid him over 70*l.* for the work, which was afterwards found to be defective, and persons had to be called in to remedy the defects in the pipes, and restore the damage done to the stairs and entries, through the leakage of the pipes, the cost of doing which amounted to the sum claimed.

Abraham Verity, hot-water engineer, said he was called in to examine the pipes at No. 1, Rutland-gate, and found the hall swamped by water. Did what he could under the circumstances, but thought the leakage was the defective workmanship in the arrangement of the "coils."

John Fairhead Clarke, the defendant, said the work was properly done, and the leakage complained of was caused through an exceptional frost, over which he, of course, had no control.

Witnesses having given evidence for the defence,

His Honour said he believed there had been some breach of contract through the work not having been efficiently done, but he should only give plaintiff a verdict for 7*l.* 10*s.*

The New Market Hall at Goole.—The new Market Hall at Goole was formally opened a few days since. It is one-storied, the area of the interior being about 90 ft. by 60 ft. Round it are shops, which open to the market as well as to the streets. The site is midway between the two railway stations, and is close to the docks, around which the population of the town generally reside. The contractors were Messrs. Radcliffe & Radcliffe, of Doncaster and Rotherham.

VALIDITY OF CONTRACTS.

NAYLOR *v.* BENTLEY.

At the Halifax County Court, on the 16th ult., the judge (Mr. J. W. Longueville de Giffard) gave judgment in the case of Naylor *v.* Bentley.

The plaintiff was seeking to recover 63*l.* 9*s.* 9*d.*, being a balance on the sum of 166*l.* 2*s.* 8*d.*, which it was alleged was the amount due to him from defendant for work done in his trade as a plumber, on five houses in Park View, at the rate of 24*l.* 10*s.* per house The action was commenced in the Supreme Courts, but remitted to the County Court. It was admitted that the work was done, and the balance had not been paid.

The defence of the action rested mainly on an agreement, by which the plaintiff claims 24*l.* The defendant filed a counter claim for 57*l.* 9*s.* 11*d.*, of which the principal amount is a claim for damages for non-performance by the plaintiff of the alleged contract, and the balance of 7*l.* 4*s.* for window-sashes sent by defendant to plaintiff to be glazed.

The first question the judge had to decide, was whether or no the plaintiff entered into the contract alleged; and if so, whether it was a valid contract in law. On the first question, whether there was a contract to do this work for a specific sum. The plaintiff denies that there was such an agreement. The alleged contract was in the following terms:—"17, Russell-street, Halifax, 1873. Tender for plumbing and glazing work required in the erection of twenty houses for Mr. Wm. Bentley, Hopwood-lane. I, John Naylor, hereby agree to do the whole of the plumbing and glazing work for the above for the sum of 24*l.* 10*s.* per house, as per plans and specifications shown.—Pro John Naylor, A.K."

After going through the evidence and commenting upon it, his Honour said, "On the whole case I am of opinion that the defendant has failed to prove the contract on which he relies, and the plaintiff is entitled to reasonable remuneration for the work done and the material supplied. It follows, of course, that the contract having failed, the defendant's counter claim fails with it. With regard to the sashes for which the defendant claims 7*l.* 4*s.*, he will be entitled to receive them on payment of the plaintiff's labour upon them, unless the parties can agree on some person to whom the amount can be referred, the case must be heard on this point at some convenient day. The plaintiff will be entitled to costs on the higher scale."

EMPLOYING YOUNG GIRLS IN BRICKYARDS.

At the Old Hill petty sessions, on the 17th ult., Messrs. George and Thomas Wood, proprietors of the Brades Brickyard, Tividale, were summoned at the instance of Mr. G. L. Blenkinsopp (the sub-inspector of factories for the district), for infringing the Factory Acts of 1871 and 1875, by employing twelve girls under the age of twelve years in their brickyards.

Mr. Blenkinsopp stated that he had taken the present proceedings against the defendants under the 7th Section of the Act of 1871, which forbade, after the 1st of January, 1872, the employment of any female under the age of sixteen in the manufacture of bricks, and of course the law now was well known. For some time past several girls had been employed at the defendants' brickyards, and on the 6th inst. he, in company with Mr. Brewer, went to the place. Just as he was about entering the yard he saw several girls running away. He requested Mr. Wood to fetch the girls back, but none were forthcoming, and upon search being made nine girls and one boy were found in a hovel by the marl hole. Shortly afterwards another girl was seen in the yard, and the others were about the works. In 1874 he visited the works of the defendants, and then found them employing a girl under age in their brickyard, and last year a girl named Mallory,—one of the twelve whom he found on the last occasion,—was engaged in the yard, but as the defendants promised amendment he (Mr. Blenkinsopp) did not proceed against them.

Defendants were fined 1*l.* and costs in each case, amounting altogether to 23*l.* 2*s.* The parents of the girls were fined 5*s.* and 2*s.* 6*d.* each for allowing their daughters to be engaged in brickyards.

"BRICKLAYERS."

A meeting of bricklayers was held last week at the Artisans' Institute, St. Martin's-lane, under the presidency of Mr. Frank E. Thicke, architect, to take into consideration the present educational condition of bricklayers, with a view of putting themselves on an equality with other branches of the building trade, and rendering themselves as eligible for the offices of foreman and clerk of works as masons and carpenters, who are now invariably chosen in preference to bricklayers. The chairman pointed out that architects refrained very often from designing ornamental brickwork because they knew that the state of the education of the bricklayers generally was such that they could not execute their designs in a proper and workmanlike manner. He trusted to see the architect and workman brought more in contact one with the other, and he, moreover, hoped that a technical class corresponding with those already existing at the Artisans' Institute for carpenters, stained-glass painters, modellers, plasterers, &c., would be formed for bricklayers. After Mr. J. Woodley, Mr. Morris, M.U.O.B., Mr. G. Savage, the Rev. H. Solly, and others had spoken, a committee of nine bricklayers was formed to report to a large meeting to be held at the end of June. A cordial vote of thanks to the chairman closed the proceedings.

CEMENT FOR CONCRETE.

SIR,—In your notice of what I said, at the Royal Institute of British Architects, on the subject of concrete, I am reported to have made use of the following words:—"Contractors were not alive to the necessity of the cement being fresh burned"; whereas what I really said was to the effect that contractors were not sufficiently alive to the fact that fresh-burned cement will expand in setting, and so lead to cracked and bulging walls; and, therefore, requires to be exposed to the air to get rid of the heat in it.

H. C. SEDDON.

INSCRIPTIONS ON HOUSES.

Your articles on inscriptions upon houses remind me that, when driving through portions of Hanover and Brunswick, I noticed a common practice of inscribing names, dates, and short sentences on the long beam which runs over the door, window, and wide driving-way, in the fronts of all the little eighteenth-century farm-houses. The German servant whom, through a deplorable ignorance, I had to take with me, Englished one of them thus:—"It is te man's name and his wife's name, and den,—'Please God, make ebery ting come *fuss-rate.*'"

It would, perhaps, be too much to expect every speculating builder to inscribe his productions with his name and his aspirations, but when a man builds a house for himself and his descendants, he might choose a worse decoration than the inscription of a pious wish; and his wife, poor thing, who will have so much worry with the place, might like at such a time to find herself remembered. THOS. BLASHILL.

REMOVAL OF VARNISHED PAPER.

In answer to "A Country Painter's" inquiry in your columns with reference to the removal of varnished paper from walls, allow me to say that I do not see the necessity for its removal, for by rubbing down the joints with pumice-stone and water, it will present a smooth surface for either paper or paint; but if the paper should be loose in places, and only come off in patches, then, of course, it will be necessary to remove it; and after fifteen years' experience I have generally found the best mode of attaining that end to be as follows:—Mix newly-slacked lime with a strong solution of soda to the consistency of paste, apply this to the paper with an old stick brush, taking care that the whole of the surface is covered. Allow it to remain on one or two hours, then wash it off with *hot* water. This will remove the varnish. There will then be no difficulty in taking off the paper itself with a scraper. If this plan does not prove effectual (it rarely ever fails), then I should recommend a charcoal-grate and scraper, and burn it off in the same way that paint is burnt off woodwork.

T. B. DENNETT.

TREES IN TRAFALGAR-SQUARE.

SIR,—Permit me to suggest an extension of the good taste by which trees have been planted up Northumberland-avenue from the Embankment to Charing-cross, viz., that they should further be planted all round the edge of the roadway, on the curb of the pavement, of the centre part of Trafalgar-square; so that the green leaves, mingling with the view of the fountains, may relieve the colourless aridity of the extent of stonework. J. F.

BREAD-BAKING OVENS.

I am called upon more frequently than, I think, I ought to be, if the material used were the right one, to stop and point in the joints of the brick ovens in my houses. The masons themselves differ as to the best material for the purpose. One recommends lime from this kiln, another lime from that one; a third says that London cement is the proper article; while a fourth tells me that London cement is a first-rate thing against water, but that plaster of Paris is the only thing that will stand fire heat.

DEVONIENSIS.

Crystal Palace.—The great Hippodrome of Mr. J. W. Myers, which has excited an extraordinary interest on the Continent, especially at the great building known as the Magasins Réunis, at the Château d'Eau, Paris, and of which we gave a view not long ago, is to be transferred to the Crystal Palace, where preparations are being made for its reception, and where it will open on June 20th. An arena of great extent and picturesqueness will be formed for the purpose of exhibiting the classic sports, chariot races, and so on. The decorations have been entrusted to Mr. F. Fenton.

VEGETATION IN CEMENT WORK.

SIR,—I have had recently to combat a similar evil to that spoken of by your correspondent, "W. W.," and should not be surprised to find the vegetable in both instances was identical.

In the case I dealt with, the external faces of a country-house close to trees, and cemented over, had many years ago been painted; when I first saw the house the strength of the paint was nearly exhausted, and it was covered in places with spots of the greyish moss or fungus described. I ascertained by survey that no efficient means had been adopted either to keep the dampness of the soil beneath the foundations, or properly to construct the drainage, and, rightly or wrongly, came to the conclusion that the offending spots were the offspring of the evaporations from a damp soil and bad drainage oozing through the walling of the house, partially only retarded by the old paint. By way of remedy I endeavoured to thoroughly drain the premises, at the same time letting in as much air as possible in and about the foundations; the painted cement work was well scraped, brushed, and washed; many of the internal papers were also washed off; and the whole of the walls were allowed some time, as I called it, to "dry out." I have had them since painted with granite paint, and have not heard of a re-appearance of the spots, though many months have elapsed.

J. GOLDICUTT TURNER.

"A BRAVE WORKMAN."

"BARONESS MAYER DE ROTHSCHILD wishes to know if the editor of the *Builder* will forward for her 100 francs to the brave workman who did not flinch when his companion let the molten lead fall on his arm." Mr. S. Tucker, of the Heralds' College (*Rouge Croix*), in like manner, asks us to send a guinea; and another individual wishes to give a guinea. In consequence of these communications, we addressed a letter to the Curé of Anthisnes (M. J. Hogge), and have received from that gentleman a most satisfactory reply, showing that our account of the bravery exhibited by M. A. Karis was even understated, and that the present is not the first time he has shown similar noble pluck and determination. We shall therefore have pleasure in forwarding the sums offered; but we shall refrain from doing so for a few days, in case any other of our readers should desire to increase the amount.

DOINGS IN DARLINGTON.

"JERRY-BUILDING" is in full swing just now in this town. The character of the buildings reared is that called the "Mushroom Order." Early in the morning, the writer, on passing to his work, has seen the foundations of a four-roomed cottage laid, and by the same time next morning the roof being put on.

The great secret of the success of this system is, that solicitors (who know a thing or two) are the architects; they considering that the cleverest workmen are those that can do the work in the shortest time. Thus the bricklayer never consults his joints, quality of bricks, or mortar, and in cottages is content to make a half-brick partition between each house, on the very plausible plea of giving more room. The carpenter is considered the most skilful who can carry lintels across bay-window openings with an inch bearing upon the walls. Joists carried across fireplaces are thought nothing of, simply for the reason that they never have the fires lighted in the bedrooms. The plasterer is a most useful ally of the bricklayer. He it is who hides all the defects of the rascally bricklayer, who too often has been but a hodman, and he makes the place look inhabitable in the buyer's and housewife's eyes; but when they are settled, a few showers of rain soon settle the question; the rain comes in at the roof, the gutters are leaky, and there is no escape from the bottom of the downfall pipe; so that the walls are continually damp from the ground. The painter is an equally valuable ally to the carpenter. He it is who putties, paints, and glues over the carpenter's cheap jack-plane performances; and the ironmongery is of the usual Brummagem ware, made to sell and not to wear.

It is curious to notice the unanimity with which these workmen scout down the idea of any architect being appointed to superintend their work; they consider them modern barbarians, and say if the workmen cannot do their own work to the architects' satisfaction, why let the architects do it themselves.

Quakertown has been plunged into grief,—real grief this time, none of your half-and-half sham crocodile tears. The cause is, the transfer of the monopoly of the Darlington Water Company to supply the towns of Stockton and Middlesbrough with water. The latter petitioned Parliament against the water; they said it was nasty, and had been so for a long time, and in the end the company have got to sell their monopoly at twenty-five years' purchase. During the last week the shareholders' faces have been an inch longer than they used to be, and the best-mannered brewer in the town whispered me that, owing to the bad outlook of trade in the district, many of his best customers had ordered table-ale in lieu of strong beer for the next twelve months; while one spirit merchant and two wine-dealers had shut up shop altogether.

"AMINIDAB DRAB."

ARBITRATION.

RYDE.

LAST week a Court of Arbitration sat at the Town Hall, in the borough, in reference to a claim made by Mr. R. Allen, of Sea View, contractor for the new sewers executed by him for the Local Board of St. Helen's, for extra work and balance of contract, amounting together to 517*l.* 1s. 11d. The Local Board disputed the amount on the ground that the work under the contract had not been properly carried out, that certain omissions of work had not been allowed for in the account, that penalties had accrued under the agreement which would materially reduce the balance due, and that the surveyor had not given a final certificate of completion.

The length of the sewers constructed was about four miles, and the amount of the accepted tender was 2,438*l.*

The arbitrator on behalf of Mr. Allen was Mr. J. Binfield Bird, surveyor, of Cowes; for the St. Helen's Local Board, Mr. T. Dashwood, architect, of Ryde. Mr. F. Pittis, of Newport, was the umpire selected by the arbitrators. The solicitors in the matter were Mr. J. W. Fardell, for Mr. Allen; and Mr. C. G. Vincent, for the Board. The Court sat five days, and the following witnesses were examined on oath:—For Mr. Allen, Mr. Tomkins, surveyor, of Sandown; Mr. T. Saunders, architect, of Ventnor; Mr. Potts, the first clerk of works, who superintended the laying of the sewers; and several of the workmen employed on the works. For the Board, Mr. Francis Newman, Ryde, borough engineer, who projected the sewage scheme for the St. Helen's Local Board; Mr. Riddle, surveyor, of Brighton (but late in the employment of the Board); Mr. Gregory, clerk of works, who superintended the relaying of a portion of the sewers; the clerk of the Local Board; and various others.

The decision of the umpire has not yet been given.

CLOCKS AND BELLS.

Blaydon.—A clock and bells have just been provided for St. Cuthbert's Church, Blaydon. The clock is by Messrs. Reid & Sons, Newcastle; the striking-apparatus being so arranged as to strike the hours upon the tenor bell. There are three dials, each 5 ft. 6 in. in diameter, which will be illuminated, the Local Board having undertaken to defray the cost. The bells are from the foundry of Messrs. William Blews & Sons, Birmingham.

Sudbury.—The augmented peal of eight bells of All Saints' Church was first brought into use on the 19th ult. There were formerly only six bells, but about twenty years ago the heavy tenor was cracked. The late vicar, the Rev. C. Badham, commenced the preparation for the restorations, but died ere his scheme could be put into execution; but after his decease the matter was taken up *con spirito* by a special committee under the leadership of Mr. Elliston Allen, with the result that the tenor has been recast, two new trebles added (one given by Mr. Allen), new framework and floor erected, and minor improvements effected, at a cost of over 400*l.* One of the trebles bears an inscription in memory of Mr. Badham, and the other Mr. Allen's name as donor; while the tenor bears the date of casting at the Bury Abbey Foundry, 1575, and re-casting, 1876, with the names of the vicar and churchwardens—the Rev. A. H. Arden, and Messrs. Archer & Pratt. The work has been executed by Messrs. Warner, bell-founders, Cripplegate.

Uttoxeter, Staffordshire.—The parish church here has just had erected in its tower a set of chimes which play one tune for each day of the week. The work has been carried out by Mr. Smith, Midland Clock Works, Derby.

Liverpool Art Club.—An exhibition will be held by this club in the autumn, consisting of illuminated MSS. and early printed books, with illuminations. It will be opened in October.

CHURCH-BUILDING NEWS.

Nowton.—The completion of the restoration of the chancel of Nowton Church was celebrated on the 30th ult. The walls have been made sound, the rubble has been pointed with grey mortar, buttresses have been built at the north and south angles, a plinth has been added at the base, and an apron of brickwork laid around the walls, with a channel which carries off the water from the chancel roof to the lowest spot, whence it is conveyed away. Six new stalls have been fixed, fitted with folding seats, on the under-surface of which are carved the armorial bearings of the present and preceding rectors of the parish. The brick pavement of the chancel has been taken up, and the floor raised one foot-pace from the nave, and another at the altar-rail. The floor of the church has been laid with Minton's tiles, in brown, buff, and white; within the altar-rail a blue star has been introduced. Among minor alterations and improvements we may note that the sedilia on the south side of the chancel have been re-opened, and all the interior walls of the church have been stuccoed afresh, the stone quoining being cleaned and left exposed to view. The work has been carried out by Mr. Lot Jackaman, builder.

Linton.—Linton Church, near Ross, has been reopened, after restoration under the direction of Messrs. Haddon Brothers. The work of restoration has been carried out by removing the lath and plaster ceilings, and throwing open the roofs; by cleaning and renovating the timbers, replacing such as were necessary. The whole of the stonework has been laid bare, scraped, cleaned, and well pointed. During the progress of the work it was found necessary to take down and rebuild some portions of it. This was most cautiously done by replacing the whole, stone by stone. The stalls of the chancel, altar-rail, pulpit, prayer-desk, lectern, and chancel-screen, are of oak, carved by Mr. Merrick, of Hereford. The reredos, in Caen stone, is the work of Mr. John Welsh, of Hereford. The metal standards of choir-desks and altar-railing are by Messrs. Perkins & Bellamy, of Ross. The font, of Painswick stone, is the work of Mr. J. Hards, of Ross. The windows are glazed with cathedral tinted glass by Mr. Davies, of Shrewsbury. The contractors for the works generally, who have completed them in a satisfactory manner, were Mr. James Bennett, of Ruardean, and Mr. E. Organ, of Drybrook, the total expenditure being about 1,750*l.*

Bournemouth.—The foundation-stone of the new church of St. Swithin, Bournemouth, was laid on the 22nd ult. by Lady Eden. The site is situate in the Manor-road on the East Cliff, and is the gift of Sir George Gervis Meyrick, bart. When finished the building will be capable of containing about 600 persons, and it is intended as a chapel of ease to St. Peter's. The contractors are Messrs. Hale & Son, of Salisbury, and the architect is Mr. R. Norman Shaw.

Slough.—The foundation-stone of the additions to Slough parish church was laid on the 4th ult. by H.R.H. Princess Christian. The plans were prepared by Mr. John Oldrid Scott, and a preliminary contract for the execution of the work has been entered into with Messrs. Wheeler, of Reading. It is proposed to add to the present building a chancel, chancel aisles, and large transepts, to accommodate about 300 additional people. The present building will then be re-seated and serve as a nave, until such time as it may be possible to build a new nave to harmonise with the portion that is now to be added. By these means seats will at once be secured for 1,000 people, at a cost which Mr. Scott estimates at about 8,000*l.*

Hoarcross.—The new church of the Holy Angels, Hoarcross, in the diocese of Lichfield, was consecrated on the 22nd ult. The church has been built at the sole cost of the Hon. Mrs. Emily Meynell-Ingram, of Hoarcross Hall, to the memory of her late husband, Mr. Hugo Francis Meynell-Ingram. The style adopted is English Gothic of the latter part of the fourteenth century. Entering at the north porch one finds a somewhat short and comparatively simple nave of two bays. The nave, and indeed the whole of the church, is built of red stone, from the Alton and similar quarries. The colour is of a warm, subdued, and quiet tint. The roofs of the nave, aisles, and transepts are of oak, moulded and carved. There is a south porch, which is arcaded and groined with stone, and has some carving. There is a central tower, with lofty arches and elaborately moulded piers and groined vaulting. The transepts are not deep, but somewhat spacious, and are lighted by large

traceried windows. At the eastern arch of the tower is a high screen of oak. The chancel is groined in stone. The east window is placed at a considerable height over the altar. The space beneath is filled by a reredos of carved stone-work with many figures, and bearing a large initial gold cross in the centre. This cross is bossed richly, and has the four Evangelistic symbols in sacred monogram, and at the foot the pelican "in her piety." The carved figures of saints and bishops include those of St. George, St. Patrick, St. Andrew, St. David, St. Michael, St. Raphael, and St. Uriel. Higher up are the Blessed Virgin and St. Gabriel, St. Chad, and other figures of angels. The mullions and jambs of the east window have niche-work and figures, the whole forming a composition of much dignity and beauty. All the windows of the chancel are filled with stained glass. In the north and south windows of the sanctuary the four "Fathers of the Western Church" occupy the lower part of one window, while the other has the four "Eastern Fathers." Above, in these and the other windows, is a "chorus angelorum." The church has been built at a cost of not less than 35,000*l*. The architects of the church have been Messrs. G. F. Bodley & F. Garner, of Gray's-inn, London; Mr. Peed has acted as clerk of works throughout. The carving has been executed by Messrs. Farmer & Brindley.

Alburgh.—The parish church of Alburgh, Norfolk, has been reopened, after restoration. The alterations and additions have been extensive, a sum of about 1,200*l*. being expended. The walls of the chancel, which is in the Decorated style, have been raised 4 ft. or 5 ft., and the mouldering fourteenth-century roof has been replaced by a new one of pine. This new roof is wagon-headed, and close boarded. It is divided into panels, the ribs of which are bossed at the intersections, and it has also a dentilled cornice. The chancel arch has been taken down and rebuilt, new columns and bases being provided. An old window at the east end of the building, which had been blocked up, has been taken out, and a four-light Decorated window put in its place. A vestry has been built on the north side of the chancel, on the site of the ancient Chapel of St. Margaret. This is an addition to the church, there being no vestry before. A window on the south side of the chancel, which was previously blocked up, has been opened out, and filled with stained glass, in memory of Mr. Barrabas Bond. A large gallery, extending some distance into the body of the nave, has been removed, throwing open the tower arch and disclosing a west window, which has been restored. On the site of this gallery a ringing-chamber has been constructed, and the ground space is partly occupied by the font. The old oak roof of the nave has been cleaned and oiled, some tie-rods were taken away, and the whole roof strengthened. A piscina on the south side of the building, and a rood-loft stairs opposite, were discovered and opened out. The south side of the chancel and the centre nave have been reseated with open poppy-headed benches, of pitch-pine, with carved oak ends, in the place of the old high-backed pews. A new carved oak pulpit has been provided, and also a new oak reading-desk and lectern. No material alterations have been made to the outward appearance of the building, with the exception of the raising of the chancel and the construction of the vestry. The architect was Mr. R. M. Phipson, of Norwich; and the builder was Mr. Morris, of Ditchingham.

Norton.—Norton Church, near Stockton, is in course of restoration, under the direction of Messrs. Alexander & Henman, architects, Stockton. The contracts of Messrs. Coates Brothers, masons, of Marton, and Messrs. Cragge & Benson, joiners, of Stockton, have been accepted for rebuilding the north and south aisles, and the west end of the nave, the erection of a porch, and cleaning and repairing the stonework of the nave.

West Derby.—The Bishop of Chester has consecrated an important addition which has been made to St. James's Church, West Derby. The enlargement of the edifice has been made at the east end by the erection of the Thornton chancel and chapel, the former chancel having been removed; and the south side has the addition of an organ-chamber and choir-vestry, advantage having also been taken to effect several other structural improvements in the edifice. The whole width of the east end of the nave, some 50 ft. in one span, has been opened up by three large pointed arches into the chancel in the centre, and the Thornton chapel on the one side and organ-chamber on the other. The chancel unites with the aisles on each side by a triple arcade with marble pillars. The work has been executed by Messrs. Jones & Sons, of Pleasant-street, the contractors, assisted by Messrs. Barker & Sons for the masons' work, Mr. Holt for the plumbing, painting, and glazing; and Mr. Callingham for the slating and plastering. Mr. Clay executed the colouring and decorating, Mr. Rogerson the carving and sculpture work, Messrs. Smith & Son the gas-fittings, and Mr. Powell the encaustic tiling. The designs were prepared by Messrs. W. & J. Hay, architects, Liverpool.

Dunston.—The church at Dunston, near Stafford, is about to be rebuilt, from the design and under the superintendence of Mr. Griffin, architect, of Wolverhampton. The building will be of stone, the outside being faced with the red stone of the district, and the inside with Bath stone. The tower will be surmounted by an oak shingled spire.

DISSENTING CHURCH-BUILDING NEWS.

Islington.—On Saturday afternoon, the 13th ult., the memorial stone of the new Union Chapel, Compton-terrace, Islington, estimated to seat 1,650 persons, and to cost in all, with schools for 900 children, lecture-room, class-rooms, and vestries, about 30,000*l*., was laid by Mr. Henry Spicer in the presence of a very large assemblage, including some who witnessed the foundation of the chapel it is destined to replace, seventy years ago. Mr. Spicer is the senior among the ten deacons of the chapel, having been appointed in 1832, and has contributed largely to the funds. The architects of the building are,—consulting, Mr. Alfred Waterhouse; and acting, Mr. James Cubitt. The builders are Messrs. L. & R. Roberts, of Islington.

Windsor.—The memorial stones of a new Wesleyan chapel in the New-road, Windsor, have been laid. The building, the site of which is at the corner of the Alma and New roads, comprises chapel, Sunday-school, four class-rooms, and minister's vestry, and the cost will be about 6,250*l*. The plans have been prepared by Messrs. Morris & Stallwood, architects, Reading. The style is Early Decorated. Provision will be made to accommodate 650 people. The chapel will consist of nave and side aisles, and the main frontage will be towards the New-road. At the back of the chapel there will be a building having externally the appearance of a chapel, to be used for Sunday-schools and other purposes. There will be a spirelet 90 ft. from the ground, it being intended at some future time to replace this by a spire, which will involve an additional cost of about 2,000*l*. The building will be of Wycombe stone, faced with Bath stone. Mr. George Reavell, of Windsor, is the builder.

Newton Abbot.—A new Congregational chapel was opened at Newton Abbot, Devon, on the 27th ult. It is built in the Early Decorated style, the material being the local grey limestone, relieved with Bath stone dressings. The building is 65 ft. long by 48 ft. wide, with organ and choir-chamber at the east end. At the west end is a massive square tower, which is ultimately intended to be surmounted by a spire rising to a height of 150 ft. The floor tiles and roof-ridging have been supplied by Messrs. Phillips & Co. from the neighbouring potteries. Appropriate texts are painted in colour over the arch of the organ chamber and the heads of the door and window openings, and other decorations have been executed in a very tasteful manner by Mr. Welch, of Bovey Tracey. The architect is Mr. J. W. Rowell, of Newton Abbot and Torquay. Messrs. Parker, of Newton, have been the builders, and the Bath stone work has been executed by Mr. J. Jackman, of the same town.

Crewe.—On the 15th ult. the foundation-stone of a new Wesleyan Chapel at Crewe was laid. The style was Italian, and the material used will be red brick, with stone dressings. The external dimensions of the building are,—length, 87½ ft.; width, 50 ft.; and the height from the ground-floor to the ceiling is 34½ ft., and the accommodation will be for 1,000 persons. The front of the chapel is to Mill-street, from which, by a flight of wide stone steps, the chapel is approached through a bold doorway. A gallery will extend round four sides of the building. Mr. George B. Ford, of Burslem, is the architect, and Mr. A. P. Cotterill, of Crewe, the builder. The contract is 4,231*l*. 10*s*.

Langton.—A new Wesleyan chapel at Langton, Dorset, has been opened. The chapel is Early Gothic in style, and is built of Purbeck stone. The fittings of the interior are of pitch-pine and selected deal, varnished, except the roof, which is stained. The accommodation provided is for 250 adults. There are two class-rooms and offices at the back. The architect is Mr. J. Wills, of Derby. The contractor for the wood, iron, and glazier's work was Mr. Griffin, Corfe Hills, and the other works have been carried out by local tradesmen. The total cost of the chapel has been 1,100*l*.

Ogilvie.—On the 17th ult. Ogilvie Free Church was opened for public worship. The church, which affords seats for 900 persons, is in the Gothic style of the fourteenth century. No spire has yet been built, but it is proposed ultimately to erect one about 100 ft. high. It was estimated that the church would cost about 4,000*l*. The contractors were,—Alex. Duncan, mason; Andrew Rae, joiner; David Brown, plumber; Wm. Yule, plasterer; and Stewart & Murray, glaziers.

Winchester.—The Congregational Church in Jewry-street, Reading, has been re-opened, after renovation and alteration, at a cost of 500*l*. Mr. Poulton, of Reading, was the architect.

Bristol.—The foundation-stone of the Whitefield Memorial Congregational Chapel, Ashley-road, Bristol, has been laid. The structure, capable of holding 500 persons, is to be of iron, and erected by Mr. Kent, of London. Schools will also be built in the rear to accommodate 200.

Margate.—The foundation-stone of the new Cliftonville Wesleyan Chapel, Margate, has been laid. The contractors for the erection of the building are Messrs. Bushell & Sons, the amount of whose tender is 4,087*l*.

ROMAN CATHOLIC CHURCH BUILDING NEWS.

Bradford.—The new R. C. Church of St. Mary, East Parade, Bradford, was opened on the 3rd ult. The building has been erected to supersede the present church of St. Mary, Stott Hill, and has been nearly two years in course of erection. It consists of a broad and lofty nave, with narrow aisles or ambulatories, with a lofty chancel, having the lady-chapel on the one side and sacristy with organ-chamber on the other. The choristers' sacristy, connected with the organ-chamber and presbytery, are in the main part towards East Parade, and opening out of the aisle on the opposite side of the church are the confessionals and side chapels. The exterior is plain and massive in structure, and relies for effect almost entirely upon boldness of outline. The chancel is apsidal, and on each face is a traceried window, the centre one filled in with stained glass, the subject being the "Ascension." The altar is of Caen stone, with alabaster super-altar and tabernacle and lofty canopy over. The lady-chapel, which opens from the chancel through a double archway, is lighted by a rose-window in the gable over the altar, filled in with stained glass. The principal dimensions of the church are as follow:—120 ft. long by 40 ft. broad, and 75 ft. high; the aisles are 120 ft. by 8 ft.; the chancel 30 ft. by 30 ft., and 75 ft. high; and the lady-chapel is 24 ft. by 20 ft., and 30 ft. high. The total cost of the church, so far as the works have proceeded, is 10,000*l*., including all fittings. A presbytery is now in course of erection adjoining the organ-chamber and chancel, and at the opposite end of the church a tower, baptistery and porch are projected. The church provides accommodation for about 800 worshippers. Mr. Simpson, of Bradford, is the architect.

Derby.—St. Marie's Roman Catholic Church, Derby, has been reopened, after a partial restoration and decoration of the interior. The nave is separated from the aisles by two rows of fluted columns, which rise to a height of 18 ft. All the timbers of the roof, which is powdered with stars, are visible, and are filled in with quatrefoils and tracery. The stanchions of the roof rest on corbels of stone, and on these are represented angels bearing shields. On the shields, as well as on those borne by the angels placed over each pillar, are various emblems of our Lord's Passion. The spandrels of the arches are filled with paintings representing subjects from the Old and New Testament. These paintings are twenty in number. In the aisles, the eight stations of the Cross on the walls, with the other six in the Lady Chapel, make up the fourteen stations of the way of the Cross. Under the large windows are the eight beatitudes from the Sermon on the Mount. The reredos contains sculptured representations of the Annunciation, Visitation, Adoration of the Wise Men, and the Flight into Egypt. Behind the altar in the apse

are three large stained-glass windows. Around the walls of the sanctuary are paintings of saints and angels. Nothing has yet been done towards the restoration of the two side chapels, the Lady Chapel, with the nuns' choirs, and the Chapel of Pietà; but this work Canon McKenna hopes to commence at no distant date.

Goole.—On the 17th ult., Dr. Cornthwaite, the Roman Catholic bishop of Beverley, laid the foundation-stone of the Church of St. Thomas of Canterbury, Goole. The edifice will accommodate 450 worshippers. The architects are Messrs. Goldie & Child, of London, and the contractor is Mr. Elliott, of Goole. The total cost will be about 2,000*l.*

SCHOOL BOARD SCHOOLS.

Garmouth.—On the 15th ult. the new public school at Garmouth (N.B.) was opened by Mr. Alex. Hay, chairman of the Speymouth School Board. The school is built upon an eminence between Garmouth and Kingston, and is Elizabethan in style. It is built of concrete, from plans from Messrs. Reid & Melven, architects, Elgin. The building is divided into two principal schools and a class-room. The general school, which is 47 ft. by 42 ft., and 15 ft. high, and will seat 112 children, is for the more advanced classes. There is a class-room immediately off this room, measuring 19 ft. by 18 ft., and seating forty-two children. In the west side is the infant schoolroom and industrial department. It measures 42½ ft. by 22 ft. There is a total accommodation for 250 children. The contractors for the work were—Messrs. Peter Bisset & Son, Aberdeen; Mr. J. Findlay, carpenter, Elgin; Mr. J. Kintrea, painter, Elgin; Mr. J. Wilson, slater, Elgin; Mr. J. Hunter, plumber, Elgin; Mr. G. Munro, plasterer, Elgin; Messrs. Sellar & Sons, ironmongers, Elgin; and Mr. R. M'Kenzie, Elgin, for earthwork. The total cost will be over 1,600*l.*

Potton (*Bedfordshire*).—These schools have lately been opened. Accommodation is provided for 140 infants and 210 boys and girls; also a residence for master. The infants' school-room is 46 ft. by 19 ft., with a class-room 20 ft. by 16 ft., while the mixed schoolroom is 46 ft. by 22 ft., with two class-rooms, one (with double sliding partition) 41 ft. by 20 ft., and another 20 ft. by 20 ft. The walls are of white brick, with red brick bandings and Bath stone dressings to the principal windows. The roofs are covered with blue Bangor slates with green ornamental bands. The schools are fitted with Moss's patent school-desks. The cost of the works, including all furniture, fittings, and boundary walls, was 3,575*l.* The contractors were Messrs. Langmead & Way, and the architects Messrs. Raynes & Shum, London.

Cromarty.—New Board schools were opened at Cromarty on the 15th ult. Messrs. Maitland are the architects.

Linlithgow.—The new Board school at Linlithgow has been opened. The plans were prepared by Mr. James Sutherland, architect, Edinburgh.

Bradford.—At the meeting of the Bradford School Board, on the 17th ult., tenders for the erection of a new Board school at Lidget Green, at a cost of 4,509*l.* 8*s.*, were accepted, as were tenders for the erection of a new infant school at Whetley-lane, at a cost of 1,953*l.* 14*s.*

London.—At the meeting of the School Board for London, on the 17th ult., the following recommendations of the Works Committee were agreed to:—That the tender of Mr. J. Grover, of Packington-street, amounting to 6,094*l.*, for the erection of a school to provide accommodation for 572 children on the site in Langdon-road, Upper Holloway (the infants' department being omitted for the present), be accepted; that the tender of Messrs. Kirk & Randall, of Woolwich, amounting to 8,431*l.* for the erection of a school to provide accommodation for 828 children on the site in the Hollydale-road, Nunhead, be accepted. Mr. E. R. Robson is architect of both schools.

Sheffield.—The Sheffield School Board has passed a resolution rescinding a resolution adopted at a meeting of the Board on the 23rd of March last inviting competitive plans for the proposed central school and offices from architects in the town. Messrs. E. R. Robson (architect to the London School Board) and Mr. Flockton, have been appointed joint architects for the central schools.

Leeds.—On the 17th ult. Sir Andrew Fairbairn (the chairman of the Leeds School Board) opened four new Board schools. The cost of these has been 20,000*l.* The scheme of the Board is to erect twenty-nine new schools, fifteen of which have already been completed. The total cost of the scheme is estimated at 200,000*l.*

Yarmouth.—At a recent meeting of the Yarmouth School Board it was resolved to invite tenders for the erection of a school at Cobholm Island. The next business was to select a plan and estimate for the new schools on St. Peter's-plain. There was a general opinion that the design of Mr. J. T. Bottle, architect, was the best, having reference to the estimated cost (2,570*l.*), with fittings, and this was chosen. Eventually it was agreed to call upon Mr. Bottle to confer with the Board as to the "pruning" of his plans.

Shipston-on-Stour.—New Board schools at Shipston-on-Stour were opened on the 8th ult. The building was erected by Messrs. Denney & Voking, the amount of whose contract was 2,744*l.* 10*s.* The architects were Messrs. Bland & Cossins, of Birmingham.

SCHOOL-BUILDING NEWS.

Ashwell.—New schoolrooms, provided by the Merchant Taylors' Company, at Ashwell, to accommodate 100 boys, have been opened. The principal room is 48 ft. by 20 ft., and is 20 ft. high, thus allowing about 190 cubic feet of air for each child for whom accommodation has been provided. The schools have been built by Mr. S. Thorne, jun., of Ashwell, from the design of Mr. E. I'Anson, architect to the Company.

Audley.—The foundation stone of new premises for the Audley Endowed School was laid on the 3rd ult. The designs for the buildings are by Mr. Ford, of Burslem, and were selected in public competition. They are being carried into execution under his superintendence by Mr. Hayes, builder, Audley, whose contract amounts to 2,195*l.*, exclusive of boundary wall and fittings. The building is to be Gothic in style; it will be of red bricks, with stone dressings. The plan comprises a school and classroom and master's residence, which adjoin each other. The school will hold about 100 children, and the house will afford accommodation for boarders.

Grimsbury.—A new Wesleyan schoolroom at Grimsbury, built by Mr. Kingerlee, has been opened. The new schoolroom is a lofty hall, 35 ft. by 55 ft., and at the south end is a large classroom, while at the north end are four classrooms, which can be thrown into the schoolroom by opening folding doors. The four classrooms are obtained by having two on the ground floor and two above, which are reached by a staircase. The new premises also include an infant schoolroom and a number of other rooms.

King Cross (*Yorkshire*).—A new building to be used as a Methodist New Connexion Sunday School, was opened at King Cross, Yorkshire, on the 18th ult. The school premises have been erected at a cost, including site and furniture, of about 2,800*l.* The architects are Messrs. Leeming & Leeming.

Fotheringhay (*Northants*). — New National Schools, at Fotheringhay, Northamptonshire, were opened on the 19th ult. The architect was Mr. Manders, and the builder Mr. Henry Martin, of Northampton. The style is Gothic, and the material used is Nassington stone, with Bath stone dressings and Broseley tiles. The schoolroom is built to accommodate fifty children, being 36 ft. by 16 ft.; it has an open wood roof, and is well lighted and ventilated. The master's house is built in a similar style. The cost has been upwards of 1,000*l.*, the greater part of which was defrayed by Lord Overstone.

Whitehaven. — On the 15th ult. the new colliery schools, erected at the cost of the Earl of Lonsdale, on the brow leading from the Ginns to Monkwray, on the outskirts of Whitehaven, were formally opened. The new schools, which are in the Old English style, have been built by Mr. Torrentine, of Whitehaven, from the plans of Messrs. Paley & Austin, architects, Lancaster, the sub-contractors being Mr. Burns, plumber and gasfitter, Mr. Atkinson, joiner, and Mr. Lowther Wilson, slater. The building has been in course of erection for the last nine or ten months, and has cost about 3,000*l.* The material used is Bransty stone, with red freestone dressings, the rooms being lined with glazed bricks to a height of 4 ft. 6 in. from the floor. The timber used in construction is pitch pine, the seats, patent desks, &c., being of beech. The schools will accommodate 350 children; but it is intended to build an additional school-room.

Books Received.

The Clerk of Works: a Vade Mecum for all engaged in the Superintendence of Building Operations. By G. G. HOSKINS, F.R.I.B.A. E. F. & N. Spon.

WE are not aware that there exists any book with the special title and intention of this one; that is, any published with the expressed object of assisting clerks of works in the exercise of their calling; though, of course, there is abundance of *lex scripta* at the command of the clerk of works if he chooses to apply to it. In general, the training for the position is of a purely practical character, and the clerk of works is kept up and advanced in his knowledge and experience by the very process of carrying out his branch of the profession; nor is there perhaps any better system (if it can be called a system) of arriving at a minute and full practical experience than by the constant exercise of supervision of the buildings in course of construction, accompanied by a habit of constantly noting the results of methods of workmanship and the behaviour of materials under different conditions. In short, the clerk of works' knowledge is a matter of continual accumulation by increasing practical experience, and it is not surprising, therefore, that the few architects who give care and thought to their pupils' progress sometimes recommend the undertaking of a post of this kind as a means of acquiring more minute practical knowledge after the period of servitude at the drawing-board is over. Such a proceeding, however, is hardly fair to the owner of the building selected for experimenting upon, however beneficial to the young architect. As a matter of fact, we believe that the really efficient clerk of works mostly rises from the lower stratum, rather than descends from the higher. He is usually a man born and bred to work with his own hands, rising by superior ability through the grade of foreman of his own branch to that of foreman of the whole,—in other words, clerk of works. In this position he extends and applies more widely the practical knowledge he has already gained in his own work.

This being, as we think it mostly is, the ordinary process of development of a clerk of works,—not a very regular or systematic, but for all that a very practical one,—there can be little doubt that the sort of book which is generally called a *vade mecum*, tabulating and systematising the information necessary for and the duties belonging to this very responsible and onerous position, would be highly valuable. But the present little book can have no claim to be anything of the sort. Conveying by its title the idea that it is a complete manual or book of reference for the clerk of works, it is, in fact, nothing more than the stringing together of a few generalities in the way of advice and memoranda; true enough as far as they go, but utterly insufficient for a representative book of the kind, which, in fact, it would be no easy task to compile. If the present essay were confined to general advice on the manner or principle of carrying out the duties it treats of, and called "Hints to Clerks of Works," it might be termed a meritorious little publication. But there is no defined aim of the kind; general advice is mixed up with occasional specific practical directions, which are out of place in a general treatise, and utterly insufficient for a practical treatise. Any clerk of works who required the practical information given here would be entirely unfit for his post, while those who really want tabulated information or directions for special difficulties will not find them here; the title of the book is therefore entirely misleading.

A Nile Journal. By T. G. APPLETON. Illustrated by Eugene Benson. Macmillan & Co.

THIS work contains no information or remarks on topics special to our pages. It is a disjointed collection of notes on the ordinary occurrences of a voyage up the Nile, interspersed with a little bad poetry, and a good deal of what the author means for delicate humour. As to the tone and taste of the book, we will only observe that a writer who refers by name to a lady whose name is known wherever English is spoken, both for her literary genius and philanthropy, as "that mature virgin," using the expression in a connexion which renders it very indelicate, has no claim to our consideration. The fact that he writes to ladies (the book is dedicated to his nieces) renders the tone of this and other passages the more offensive to good taste. Among

indications of the author's state of education, we notice references to a "hypæthal" temple, to a place called "Shaffhausen," and to a late celebrated Parisian authority, as "Hauseman." There may have been an excuse for writing the journal; there could be none for publishing it.

Miscellanea.

Proposed Convocation or Clergy House.—At a meeting of the Convocation of the Province of Canterbury, held at Westminster, Archdeacon Chapman presented a gravamen setting forth that, although the Houses of Convocation are summoned together with the two Houses of Parliament, and have letters of business from the Queen, there is no fitting place for their meeting, and praying the Upper House to take the matter into consideration. The Prolocutor said, notwithstanding the extreme kindness and courtesy of the Dean of Westminster towards this House with a view to make arrangements for their convenience, it was perfectly obvious, if they looked around that chamber, that they were not accommodated as a portion of the Provincial Synod of Canterbury ought to be. He had felt it for some years past, and should be thankful if something could be done to provide a Convocation House more worthy of the Church of England, and it appeared to him that there was now a favourable opportunity for entering into communication with some of the great societies connected with the Church. The House was probably aware that the Christian Knowledge Society was contemplating a removal from Lincoln's-inn-fields to a more eligible situation; and the Society for the Propagation of the Gospel was also likely to be unshipped in consequence of the Government requiring the space on which their house stood. It had been suggested that it would be a desirable thing if a Convocation House could be provided with rooms for these and other great societies of the Church of England grouped around it.

New Fonts.—A new font was dedicated, on the 7th ult., at St. Andrew's Church, Norwich. It has been executed by Mr. James Forsyth, from a design by Mr. William Smith (both of London). It is of Caen stone, and stands upon a dais of three steps. The idea that the doctrine of the baptism rests on the authority of the eight writers of the New Testament is worked out in the various details of the design. Cut in niches of Perpendicular work around the columns are four statuettes representing the Evangelists. The bowl is partitioned into eight panels, in which are alternately the cross of St. Andrew and the emblems of the other four New Testament writers,—St. Peter, St. Paul, St. Jude, and St. James. A fine moulding runs round the top of the bowl, and at each of the angles of the squares at the base is a cherubim in relievo. The cost has been 145*l*. A baptistery in memory of the late Thomas Dickson, M.D., of Wye House, Buxton, and of James Dickson, C.E., his second son, who died at Dunedin, New Zealand, in 1863, and who was re-interred at St. Peter's Church, Fairfield, Buxton, in 1866, has just been completed in St. John's Church. The floor is in tesselated tiles; the roof, seats, and sides are in red pine; the font is carved in white marble, and is the work of Mr. Twigg, of the Ashford Marble Works.

Swansea Royal Institution New Buildings.—The Committee appointed to report as to the most eligible site for the Institution new buildings, proposed to be erected in a more suitable locality than the present, have issued their report. The committee have come to the unanimous conclusion that the site in St. James's-crescent, Walter-road, on the eastern side of St. James's Church, would be in every respect the most satisfactory, and they recommend the Council to acquire the same without delay. The land in question, looking south-west, comprises a frontage of 197 ft., with a depth of 130 ft., and an area of 3,221 square yards. Appended to the report of the committee is the report of the advising architect, Mr. E. M. Barry, R.A., who states that after a careful consideration of all the circumstances, he is of opinion that the St. James's-crescent site offers the greatest advantages over all the others.

Sculpture.—It is proposed to erect a statue of the Right Hon. C. P. Villiers in Stafford. Men of all shades of opinion united at a public meeting in advocating the proposition. A committee was appointed to carry it out.

The China Clay and China Stone of Devon and Cornwall.—This was the title of a paper read before the Society of Arts by Mr. J. H. Collins, F.G.S. He said that the granite rocks of the West of England had long yielded materials for the use of the potter. These consisted chiefly of a fine white refractory clay called indifferently kaolin, porcelain clay, China clay, or Cornish clay, and of a white vitriable variety of partially decomposed granite known as porcelain stone, China stone, or Cornish stone. This latter appeared to be identical with the "petuntze" of the Chinese. The production of China clay and stone in the two extreme western counties in the year 1874 was more than a quarter of a million tons. Notwithstanding the vast improvements made in extracting and working it of late years, there was still much to be done in reducing the cost of production. For instance, at the present time about one ton of water has to be driven off from each ton of clay "in the dry," and this operation involves a consumption on the average of at least two tons of coal, and a cost of from 8d. to 10d. in labour. The uses of China clay were many, its first application having been to the manufacture of porcelain. Large quantities were used by bleachers for filling up the pores of calicoes as a dressing, and still larger quantities by paper-makers, to give body and weight to their paper, especially to printing paper.

The Iron Trade.—Messrs. Shaw & Thomson's *Iron Trade Circular* thinks the bitter depression which has so long characterised the iron trade shows no sign of abatement; on the contrary, every week deepens the despondency which has so long prevailed. For twenty-five years there has been no parallel to the present unfortunate state of affairs. Falling prices have brought no increase of orders, nor does there appear to be any chance of a further fall having this effect. There is equal, if not greater, depression in the iron trade of France, Belgium, and Germany. Works there, as here, are gradually being liquidated and closed. Those which are in operation, and have their raw materials in their own hands and on favourable terms, may make a small profit, or save a loss; but the great majority are losing money, and only restrained from absolutely closing the works by indulging in hopes of a revival, which may not at all events be looked for during the present year. The relations between employers and employed will undergo considerable change, compared with what they were two years ago, and the result will probably be beneficial to both.

Tarves' Buildings, Turriff (Banffshire).—These buildings, which have been in course of erection for some time, are now completed. They are situated at the corner of Main-street and Chapel-street. The stone is red sandstone from the Ardine quarries. The frontage along Main-street is 50 ft.; along Chapel-street, 53 ft. The architect was Mr. George Gellie, Kemnay; and the contractors were,—For masons' work, Messrs. Fordyce & Sons (the stones being supplied by Messrs. Duncan & Mair, Ardin quarries); for plumbers' work, Mr. Charles Duthie; for carpenters' work, Mr. Wm. Tennon; for plasterers' work, Mr. J. Gibson; and for slaters' work, Mr. W. Gillespie—all of Turriff.

New Cattle Market at Middlesbrough.—The commodious cattle-market, which has been provided by the Corporation of Middlesbrough, was recently opened for the sale of cattle. About an acre of ground is covered by the market proper, and half an acre by the cattle mart, which is now utilised for market purposes. Firm and substantial pens for cattle, sheep, and pigs are provided. On one side the market faces on to Corporation-road, one of the main thoroughfares of the town and a wide and handsome street, and on the other to Albert-road, a perfectly straight street, about 400 yards in length and 60 ft. in width, leading direct to the railway station, and connected by the tramways with the remoter parts of the town. There is accommodation in the market for upwards of 1,500 head of cattle, and if the market proves to be a continued success the area can be extended.

New Foot-bridge at Thropton, Northumberland.—A substantial wood foot-bridge has been constructed, by public subscription, over the river Coquet, at Thropton. The old one was carried off during a heavy flood some eighteen months ago. The bridge is built of creosoted timber, by Messrs. Elsdon, Brothers, Rothbury.

Edinburgh Prince Consort Memorial.—Since we last referred to this monument, progress has been made with the work remaining to be done, and the date of its completion may now be confidently indicated. There remain, we believe, to be made only some subsidiary castings, and Mr. Steel proposes, within a week or two, to enclose the pedestal and proceed with the placing of the statuary. The first thing to be done will be to fix the bronze relievos, four in number, which are to occupy the panels of the pedestal, representing respectively her Majesty's Marriage; the Opening of the Great Exhibition of 1851; the Prince Consort distributing Rewards of Merit; and the Prince in the Midst of his Family. There will next be placed the subordinate groups of statuary, also four in number, for which projecting platforms are provided at the several corners of the basement. These are intended to represent the various ranks and classes of Society in the act of paying homage to the Prince Consort. The group referring to the upper classes was designed by Mr. W. Brodie; that suggestive of the army and navy by Mr. Clark Stanton; and that embracing representatives of art and science by Mr. D. W. Stevenson, who also carried out the design significant of the working classes, which was originally entrusted to the late Mr. M'Callum.

Wood Peeling in Perthshire.—Perthshire is among the most extensively wooded counties in Scotland, and the landed proprietors derive a large revenue annually from the sale of various descriptions of wood. In order to show the extensive wood traffic, it is mentioned by a Scottish paper that during May, June, and part of July, several thousand persons, consisting of men, women, and children, are employed in the cutting down and peeling of oak and larch trees. The usual number of workers are busy at present in the woods of Strathearn, Strathtay, Breadalbane, Athole, and other districts; but some difficulty has been experienced up to this date, owing to the backwardness of the season, in stripping the bark, especially of the oak trees. The hands, which are chiefly Irish, earn good wages,—the men being paid at from 4s. to 4s. 6d. per day, and women's wages range from 2s. to 2s. 6d. daily. It may be mentioned that some difficulty is frequently experienced in procuring hands to work in thinly-populated localities, owing to the scarcity of lodgings, and it has been found necessary to erect rude huts in the woods, which serve as sleeping apartments and for cooking, &c. The oak bark, which is used for tanning purposes, is sold at from 7*l*. to 8*l*. per ton, and larch ranges from 3*l*. to 4*l*. per ton. The larch wood, after being peeled, is cut up into railway sleepers, pit props, &c., and realises good prices. The wood of the oak coppice is generally sold for firewood, and ranges at from 15s. to 16s. per ton, but the heavy, or what are called the standard oak trees, are sold for shipbuilding, coachbuilding, making shafts, cart wheels, and for many other useful purposes. The extent of the trade in wood-peeling may be gathered from the fact that on the small estate of Balgowan alone no fewer than 9,000 larch trees of larger and smaller dimensions will be cut down and pealed this season.

Archæological Museum Wanted for Cambridge.—A memorial has been presented to the Council of the Senate of the University of Cambridge, calling attention to the importance of the objects of local and general archæology which exist in Cambridge, and suggesting that such objects ought to be arranged and exhibited in a suitable University building. A very considerable collection, the property of the Cambridge Antiquarian Society, is at present distributed, for want of other accommodation, in some three different places, which makes the collection unavailable for the purposes of study. The Antiquarian Society have expressed their willingness to hand over their collection to the University, provided a suitable building be found for the purpose, and the memorialists in question suggest that a building should be provided contiguous to the new Divinity Schools, which are shortly to be erected.

Free Library at Macclesfield.—On Saturday last a Free Library, erected at a cost of 5,000*l*., and furnished with 7,000 volumes of books as an instalment of 10,000 promised by the donor, was given by Mr. Chadwick, M.P., to the town of Macclesfield. The only condition attached to the gift was the adoption of the Free Libraries Act, to ensure the maintenance of the library, which was unanimously done by the ratepayers in 1874, soon after the gift was promised.

Upperthorpe Branch Library, Sheffield. The new building for the branch library at Upperthorpe has been opened. It stands at the corner of Upperthorpe-road and Daniel-hill. Its style of architecture is an adaptation of the Italian, and red and white brick has been used in its construction. Over the doors—the entrance is 6 ft. wide—there is a stone arch, the semicircular space in which is filled by a carved panel, having a shield bearing a carved representation of the borough new arms. The cornice piece is supported by a bracket on either side of the door, and on these are two carved figures. One is that of a Sheffield factory-girl intently reading a book; the other figure represents a young Sheffield workman, with shirt sleeves rolled up, and hands resting on the handle of a large hammer. The sculptor both of the figures and the shield is Mr. J. W. Cooper, of Sheffield and Cambridge. A peculiar feature in the public rooms is that they are lined with white brick, with a few red bricks in bands and borders. The object of this is to save the expense of painting and papering, as the walls can always be washed clean. The total cost of the building is nearly 6,000*l*. Mr. E. M. Gibbs is the architect.

New Landing Stage at Birkenhead.—Messrs. Emmerson, Murgatroyd, & Co., engineers, have just completed a new landing-stage for the Great Western Railway Company, which is to be used instead of the present landing-place at Birkenhead. The stage was brought from the Great Float and placed in its permanent position between the Morpeth Dock and the low-water basin. In construction it is similar in every respect to the new Liverpool landing-stage, but its dimensions of course are very much smaller, the total length being 350 ft. Hitherto the cattle sent from Ireland for transshipment by the Great Western Railway Company have had to be landed on the Liverpool side, but in future it is intended that they shall be brought direct to the Birkenhead side of the river, by which arrangement considerable expense will be saved. The stage is to be connected with the piers by two bridges, which will exceed in size those which are erected at the Liverpool stage; for, whereas the latter weigh about 90 tons each, those which will connect the new Birkenhead stage with the shore will be no less than 150 tons each.

The Sewerage of Stourbridge.—Mr. E. B. Martin has, in accordance with instructions, presented a report to the rural sanitary authority of the Stourbridge Union upon the drainage of the district. Among other recommendations he says the pipe-drains laid down should discharge at suitable sites near the towns, where the greatly reduced volume of really valuable contents (without the usual admixture of rain water and street mud) could much more readily be either purified by filtration or utilised on the land, and where also the carts should convey the refuse from the privies and ashpits, to be used or sold as manure in its raw state, or to be manufactured into a more portable manure of greater value. Nine places are marked as suitable outfalls for the pipe-drains. At each outfall it is proposed, if possible, to obtain a sufficient amount of ground for the following purposes:—(1) (although not absolutely necessary) a small sewage farm, on which part of the sewage would be conducted direct on to the land; and (2) small works for disposing of the sewage at such times as it is not required on the farm or could not be sold to farmers in the neighbourhood.

White-Lead Poisoning.—Mr. Redgrave, inspector of factories, calls attention to the serious perils to which the workers in white-lead factories are exposed. The chief sufferers are women, generally of a low class and dissipated habits; and in their case "the white-lead was collected in masses under the nails of their fingers, whilst the hair and scalp were thoroughly engrained with it." Mr. Redgrave proposes that it should be compulsory in every white-lead factory to provide clothes, gloves, and caps, to be worn only in the works, waterpoof boots for those working with the moist white-lead, and respirators for those working with the dry white-lead. He also suggests that none should be allowed to leave the works unwashed or in factory dress.

The Directors of the Great Western Railway Company are about to erect a new block of offices at their terminus at Paddington, and have accepted the tender of Messrs. Jno. Waldram & Co., of Kingsland-road for the same. The works are to be commenced forthwith.

Presentation to an Art Master.—On the 18th ult., six of the senior students of the Stoke School of Art waited upon their late master, Mr. J. P. Bacon, at his residence at Penkhull, for the purpose of presenting him with a testimonial of the esteem in which he is held by the students and many of the principal supporters of the school over which he presided for so many years. The presentation consisted of a silver-gilt salver, having, in *repoussé* work, emblematic representations of the seasons, and ornament conceived in the style of the Italian Renaissance. *En suite* with the salver is a cut and engraved glass and champagne jug, with silver-gilt mountings. Round the salver, which is 22 in. in diameter, is an appropriate inscription. The subscription list was headed by the Rev. Sir L. T. Stamer, bart., Messrs. Mintons, Messrs. Copeland & Sons, and Mr. W. Keary, chairman of the School of Art. The presentation was made by Mr. F. Rhead in a graceful speech, and Mr. Bacon, in the course of his acknowledgment, spoke of the very kind and friendly feeling which had always subsisted between himself and the students.

Victoria (Philosophical) Institute.—On Monday, at the annual meeting of the members of this Institute, the Earl of Shaftesbury (in the chair) said he had a very gratifying task to perform, and that was, on behalf of the Institute, to present the testimonial which they saw before them to Captain F. Petrie, who had acted as honorary secretary and editor of the Transactions for the last five years and a half, during which time the Society had risen from 200 members to its present strength (690). The testimonial consisted of a purse of 100*l*., and a handsome tea-service and tray in silver, the inscription stating that it was presented by the President and Council to Captain F. Petrie, late 11th Regiment, in testimony of their high esteem, and in recognition of the very energetic and valuable services he had rendered to the Society as its honorary secretary. Captain F. Petrie having expressed his warm acknowledgements, Professor Birks then read the address.

Street Architecture in Derby.—The *Derbyshire Advertiser* states that some important improvements are about to be made by Mr. A. Woodiwiss, opposite the post-office, from plans prepared by Messrs. Giles & Brookhouse, architects. It is intended to complete the end of St. James's-street, by continuing the present stone buildings, known as St. James's-chambers, up to the end of the street, and to return the same by the brookside some distance,—forming four new shops and offices, or dwellings over. It is proposed to have a roadway over the brook of 40 ft. wide, provided the Corporation intend to continue the street to Sadler-gate Bridge, for which powers have already been obtained. At the circular corner is shown an entrance, with spacious staircase leading to the upper floors, which are to be adapted for the purposes of a town club. The building is to be erected in stone. The character is Italian. The outlay contemplated by Mr. Woodiwiss is, it is stated, at least 30,000*l*.

Slag utilised for Building Purposes.—Mr. R. D. Caddick, of Middlesbrough, has patented some improvements in the construction of machinery for the manufacture of bricks, blocks, tiles, and other similar articles, from slag or scoria. On the outer circumference of a circular table or wheel a series of moulds are mounted between bearings so as to be capable of being turned over. The machine is placed in front of the slag hole of the blast furnace, or in any suitable position, and the molten slag run into the mould in position to receive it, the circular table or wheel being revolved until each mould is filled. When the slag is sufficiently set, a key is fixed on to the end of the mould, which is elongated for that purpose, and the mould turned over thereby, so as to allow the brick or other article to drop on to a carriage for removal to the annealing or cooling sheds.

Bricklaying to be Taught in a Workhouse School.—At the meeting of the Holborn Board of Guardians, on the 17th ult., the School Committee presented a report recommending that a bricklayer be employed at the schools to teach the boys the trade of bricklayer. Mr. Hopkins moved the adoption of the report. He said if they employed a man to teach the boys bricklaying, they would get his salary out of the Metropolitan Poor Common Fund. They had plenty of work for a man for several months, and this would be a good way of getting the work cheaply done. The report was adopted.

Burning Lime and Cement.—A recent invention, by Mr. Ananias Smith, C.E., of Buffalo, U.S., consists, firstly, in a method of burning the raw material from which the lime or cement is to be produced, by subjecting the same to the action of heat produced by the active combustion of any suitable liquid fuel or vapour produced therefrom, comparatively free from sulphur, and especially (on account of its comparative cheapness) of petroleum, or other allied liquid hydrocarbon, or vapour produced therefrom, associated or in combination with steam, superheated or not, and with air. Secondly, in a similarly descriptive method, but in which the quantity of either or all of the elements of combustion therein specified is controllable. And, thirdly, in apparatus in which these methods are carried into practice.

East-Anglian Art Society.—We see by a Norwich paper that the increasing interest shown by the general public in the fame and works of local artists has led to the formation of a society having for its object the acquisition and preservation of their pictures, and the exhibition of them in a permanent gallery in Norwich. It has been for some time observed that many of the best pictures of the "Norwich school" have been gradually withdrawn from the county of Norfolk by the competition for good pictures, and thus many of the best works of Crome, J. S. Cotman, and others, have been, probably for ever, lost to the locality in which their authors are held in highest esteem. It is stated that until the society is able to secure a permanent building, the pictures already acquired will shortly be exhibited on screens in a room in the Museum.

"Letting by Candle."—At the village of Tatworth (says the *Wiltshire County Mirror*) is still observed the ancient custom of letting annually, during the time an inch of candle burns, a piece of land known as the Stowell' Mead. Only a limited number, about twenty, who own or occupy certain lands, are privileged to bid. The meeting this year was held on the 22nd ult., at the County Hotel, and presided over by Mr. J. C. Langdon. After a spirited bidding, Mr. Berry, of Southard, was the successful competitor, his being the last offer before the candle was burnt out, of 16*l*. for the land (seven acres) for the current year.

Floating Hotels.—Among the novelties which Philadelphia Centennial Exhibition introduces are a number of "floating hotels," or vessels fitted with special sleeping and dining accommodation, and moored in the river for the use of visitors who may be unable to find accommodation in the city, or who may prefer this novel style of hotel. From the New York papers it appears that parties have been formed at various parts of the coast, and at New York itself, to visit Philadelphia by steamer or yacht, the vessel being made the general rendezvous and sleeping-place during the stay of the party in the city.

The Potters' Disease.—Mr. Griffiths, the medical officer of Fenton, reporting on the health of the district, referred to Dr. Richardson's recent lectures on unhealthy trades (reported in the *Builder*), and said that nearly 60 per cent. of working potters died from diseases of the lungs, and that the average age at death of adult potters is 46½. Mr. Malkin, a manufacturer, remarked on this that he did not believe it was so much the employment as ignorance and thorough neglect of sanitary precautions by potters that was to blame. Mr. Stubbs said it was sometimes the fault of the masters in allowing the men to work in small, unhealthy, crowded places.

A Foundation-stone Robbed.—The brickwork surrounding the memorial stone on the new parish church at Slough, recently laid by Princess Christian, was broken through on the night of the following Sunday, and the bottle which had been placed within the cavity taken away, doubtless with the expectation of finding in it the current coins of the realm. The bottle, however, only contained papers and documents.

Bad Building.—Last week, in the Newington Vestry, a letter was read from the Vestry of Kensington, enclosing a resolution to the effect that having regard to the fact that houses in course of erection—either through defective material, faulty construction, or from undue rapidity—had fallen down, to the injury of persons, the Vestry urge upon the Metropolitan Board to introduce a Bill into Parliament with a view to remedy the evils complained of.

Abattoirs for Southampton.—At a meeting of the Southampton Town Council, on the 17th ult., the Sanitary Committee presented a report recommending the Corporation to obtain at the earliest practicable period powers to erect public abattoirs and lairs, with all necessary buildings in connexion therewith, upon the cattle-market land on the Marsh. An isometrical plan of the proposed abattoirs on the Marsh, prepared by the Borough Surveyor, Mr. Lemon, was submitted to the Council. The recommendation was adopted.

The Paris International Exhibition.—The final decision as to the designs has not been arrived at. The undertaking will probably be in the hands of the Government, and the profits arising therefrom go to the State. The cost is estimated at thirty millions of francs (1,200,000*l.*) or thereabouts. The work will be under the direction of Monsieur Krantz, assisted by Messrs. Viollet-le-Duc and Lefuel. Messrs. Davioud & Bourdais, whose names we mentioned in a recent notice, are on the list of those whose designs will receive the first prize, viz., 3,000 francs.

Church Building and Restoration.—An address to the House of Lords has elicited a supplemental return of the churches (including cathedrals) in England and Wales built or restored at a cost exceeding 500*l.* since the year 1840, and the total expenditure. The details supplied are, however, in many cases imperfect. The total number of new buildings and restorations returned for in England and Wales is 8,871, including 27 cathedrals, and the total expenditure 25,548,703*l.*

The Shakspeare Memorial Theatre.—At the last meeting of the Shakspeare Memorial Association, held at the Town-Hall, the Council proceeded to inspect the five sets of plans sent in by the architects selected for the second competition. No final decision was, however, arrived at, as the thorough examination of the drawings and estimates will take time. It is hoped that not only the theatre, but the picture gallery, will be commenced as soon as the plans are decided upon.

Loan Collection of Scientific Apparatus at South Kensington.—We are asked to state that a number of scientific gentlemen have volunteered to give lectures in connexion with the Loan Collection of Scientific Apparatus on the free evenings. These lectures will commence on Saturday next, at eight o'clock, in the conference-room, by a lecture from Professor Roscoe, of the Owen's College, Manchester, on "Dalton's Instruments, and what he did with them."

Strength of Girders and Joists.—Messrs. Macnaught, Robinson, & Co., of Bankside, have published a table showing the estimated safe permanent distributed loads, in tons and cwts., for the various rolled iron girders and joists kept by them in stock. It will be found useful. The calculations are based on the assumption that the iron in tension will break at twenty-one tons per square inch, and the safe loads are taken at quarter the breaking weight.

Educational Buildings, Nottingham.—The Corporation of Nottingham are advertising for designs, and Mr. M. O. Tarbotton, the borough engineer, has prepared what appear to be very full instructions to architects.

Newton Abbot.—The east window of the new Congregational chapel at Newton Abbot, Devon, has been filled with stained glass by Mr. Drake, of Exeter, at the cost of Mr. Sparke Evans, of Bristol.

Theatre, Mentone.—M. Garnier has just been entrusted by the Municipal Government of Mentone with the erection of a theatre in that city. The cost is to be 300,000 francs.

TENDERS

For the erection of ten houses, Dale-road, Chiswick. Mr. F. Beeston, architect:—
Downs & Co. (accepted).

For three shops, 31, Great Portland-street. Mr. Lewis Solomon, architect. Quantities by Messrs. Williams & Gritten:—

Pope	£2,390 0 0
Patman & Fotheringham	1,988 0 0
Wilson Bros.	1,952 0 0
Grimwood & Sons	1,920 0 0
Cohen	1,900 0 0
Downs & Co.	1,569 0 0
Davey	1,783 0 0

For the erection of a shop and dwelling-house, and for pulling down shops and cottages, Munster-street, Reading, for Messrs. Heelas, Sons, & Co. Mr. C. Smith, architect. Quantities supplied:—

	Amount of Tender.	Alternative Tender.
Elliott	£8,031	£71 3
Parnell	7,249	115 0
Simonds	6,745	85 0
Searle	6,690	86 0
Langmead & Way	6,650	61 17
Filewood	6,597	138 0
Hill & Co.	6,590	146 0
Pither	6,861	88 0

For the erection of a residence for Mr. W. B. Bragg, at Market Harborough. Mr. Charles Bell, architect. Quantities by Mr. Henry Lovegrove:—

Patterson	£2,450 0 0
Clark	2,323 0 0
Hobson	2,299 0 0
Mattock	2,289 0 0
Palmer	2,235 0
Hall (accepted)	1,980 0 0

For two houses and shops (exclusive of shop fronts), Atlantic-road, Brixton, for Mr. Kemp. Mr. Treacher, architect:—
Macey (Brixton) (accepted) £1,400 0 0

For the restoration of St. Mary's Church, Huntingdon:—

Thompson	£2,015 0 0
Bates	1,408 7 6
Osborn (accepted)	1,267 18 0

For new tun-room and stables at the Plough Brewery, Wandsworth-road. Mr. Henry Knight, architect:—

Jackson & Shaw	£1,990 0 0
Pritchard	1,920 0 0
Rider & Son	1,880 0 0
Lathey Bros.	1,870 0 0
Macey	1,698 0 0

For the erection of Wesleyan Chapel and Schools at Woodford, Essex. Mr. Charles Bell, architect. Quantities by Mr. Henry Lovegrove:—

Egan	£2,762 0 0
Hobson	2,596 0 0
Stephenson	2,573 0 0
Downs	2,558 0 0
Ennor	2,435 0 0
Morter	2,435 0 0
Niblett (accepted)	2,292 0 0

For rebuilding the White Horse tavern, Burdett-road, Mile-end. Mr. John Viney, architect:—

Hanley	£1,937 0 0
Stamp & Bowtle	1,893 0 0
Eaton	1,890 0 0
Shurmur	1,890 0 0
Downs	1,475 0 0
Atherton & Latta	1,459 0 0

For office fittings to 34 to 40, Ludgate-hill, for Sir J. G. Tollemache Sinclair, Bart., M.P. Mr. J. Lewis Holmes, architect. Quantities by Mr. J. Waghorn:—

	In Mahogany.	In Deal.
Scrivener & White	£1,307	£624
Drew	1,189	677
Cullum	1,160	570
Kelly Bros.	1,093	587
Gould & Brand	949	579
Somerville & Smith	896	595

For new stabling in rear of No. 96, Stanhope-street, Regent's Park, for the executors of the late Mr. W. Arkell. Mr. W. F. Hooper, architect:—

		Channelled Paving, extra.
Kelly Bros.	£330	£14
Staines & Son	297	22

For enlargement of the Bedfont Schools, Middlesex:—Bartlett, accepted.

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